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THE CHICAGO MEDICAL SCHOOL

VOLUME 5 NUMBER 3

SEPTEMBER, 1944

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THE CHICAGO MEDICAL SCHOOL

VOLUME 5, NUMBER 3 **SEPTEMBER, 1944**

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Editorials . . .

SO much of a nation's wealth lies in its great men that perhaps our richest natural resource is the intellectual capacity of our citizens. Like all other natural resources, such capacity is useless unless it is developed. Development requires education. Our stock of educated men should not be allowed to run short.

There is one facet to this stone that concerns us intimately. It is extremely unfortunate, though apparently necessary, that a "college education" in the old sense of the word is nowadays practically non-existent. It does not take an educational expert to see that those men who would ordinarily be in college are now in the armed forces. Or to see that a man cannot learn as much in two years as he can in four. Such a situation is a logical part of an all-out war. Still, the country loses greatly because so many young men, by reason of a heroic death or of a post-war inability to adjust themselves, will no longer be able to do their best for the community.

Medicine is but one of the arts and sciences which stands to lose by the present situation. It is surely felt keenly not only in the profession but in all aspects of our national life when the inadequate supply of physicians must decrease still further because there are only a limited number of qualified students available to the medical schools. We, from our uninformed position can only speculate upon the possible danger to national health which may result from the present shortage of physicians. This condition is certain to become more acute if there is no provision made for a constant adequate enrollment in the medical schools.

It is improbable that the needs of the country will be fulfilled by women and those men not acceptable to the armed forces.

At the present time there is before Congress a Bill—H.R. 5218—which would provide for the deferment of six thousand premedical students. This number, added to the available women and 4-F students would supply the needs of the country. We therefore urge the support of this Bill with the hope that it will be passed during the next session of Congress.

Whatever the solution, the nation must be assured of adequate medical care at a time when that care is so urgently required by both

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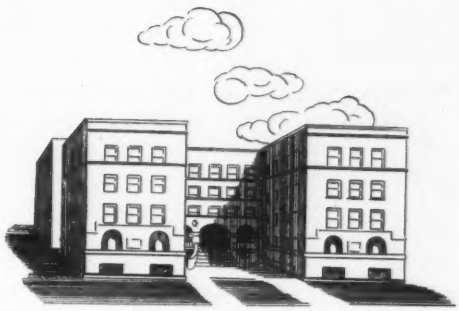
civilian and military populations. The groups with whom the responsibility lies are no doubt actively engaged in improving the situation. They must surely know how much our country stands to lose if proper provision is not made for the necessary supply of trained physicians for the nation.



COOPERATION BETWEEN THE FAITHS

ON February 24th, 1944, Columbia University gave recognition to the "growing spirit of cooperation among the religious faiths." In a ceremony unique in purpose the University awarded honorary degrees to outstanding representatives of the Christian and Jewish faiths.

At a time when the spectre of racial prejudice has assumed most alarming proportions, not only among the enemy where the racial doctrine is well supported, but also among many neutrals and in some of the United Nations; leading Protestants, Catholics, and Jews have issued a Declaration on World Peace which is expressive of the finest ideals concerning the rights of men.

From another eastern university comes a further attempt to destroy religious, social and racial prejudice. The Yale News Digest is actively supporting an Inter-religious Council composed of representatives from the various religious organizations on the Yale campus. The Council will supposedly dedicate itself to the eradication of prejudices.

Thus both educators and students in the East have expressed their stand. It is desirable and imperative that the Midwest follow. This country above all should take the lead in a universal housecleaning of malicious lies and rumors, since it is this country that was from its beginning dedicated to those ideals the United Nations are purportedly fighting for. Many of the more enlightened citizens of the United States have in the past shown a passive tolerance to those other citizens who differ from them in color, creed or social position. How clearly has the present war shown that tolerance is not enough to prevent such holocausts of destruction as have descended upon us! Tolerance must be active. Tolerance must mean to each of us: "justice, amity, understanding and cooperation" among all groups and between all peoples.

THE MEANING OF DREAMS

RUDOLF DREIKURS, M.D.
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THROUGHOUT civilization, as far back as we know, dreams were considered with great interest. Their puzzling senselessness stimulated human imagination. Their fantastic symbolism made them appear tools of supernatural powers. Past attempts to use dreams for predicting the future and for similar unscientific, magic and even monetary purposes have discredited dreams so that no serious and honest person would pay attention to them. Only recently has modern psychiatry recognized dreams as an extremely helpful way of exploring the inner life of a person. The analysis of dreams is indispensable in modern psychotherapy.

Dreams are thoughts put into action, mostly of visual nature, animated pictures created by the fantasy of the sleeper. During the deepest sleep the brain probably rests completely, with the exception of the centers of vegetative function. As the sleep becomes more shallow brain activities increase. Free of outside influences the thoughts take on any form which the personality wishes to give them. We dream every night, but we do not remember all of our dreams. Only if the dreams are more exciting or impressive are they remembered after awakening. The dreams which are remembered occur mostly shortly before awakening or in times of very shallow sleep, if the sleeper is half awake through physical irritation or strong outside stimulation. It is experimentally proven that the speed of thought, producing the impression of dreams, is extremely fast and not on the verbal level. Some of the confusion and bizarreness of dreams is due to the ability to have several thoughts simultaneously on the non-verbal level. In their dreams, people think in symbols and create form, color and movement in an artistic way. Some people suppress their creative imagination to such a point that even their dreams become dull. Others reveal by the highly artistic symbolization of their dreams their general artistic ability. On the basis of this fact it was possible in some cases to discover special artistic abilities in persons who had not been aware of them before, and to direct their activities in a new field of endeavor.

In order to understand dreams one must be able to understand human thoughts. Normally, thoughts function to prepare action. Only under abnormal conditions can thoughts be used for substituting action as in obsessive ideas, indecisiveness, worries and similar symptoms of psychoneurotic disturbances. The preparation through thinking can again be on the verbal or the non-verbal level. Thinking can serve as deliberate planning of action by leading to conscious conclusions in regard to action and procedure; or the thoughts provoke attitudes and emotions in regard to the problem which has to be solved. It is very rare that dreams provide a logical and conscious answer to problems, although examples for this are known (finding technical or mathematical solutions in dreams). In most instances, however, the dream-thoughts are not logical and cannot be understood with verbal logic. Nevertheless they are not senseless either; their psychological meaning is evident to anybody who understands the psychology of the dreamer. During sleep, in our dreams, we let our thoughts go and in this peculiar way of thinking-through we approach our problems not differently than we do in our awakened condition. Only while asleep are we completely free to let our thoughts wander, to visualize what we want to see and as we expect it to happen. We can create situations and arrange events without limitation, but in accordance with our attitude. Nobody can dream of anything he does not think of, nobody experiences in his dreams what he does not expect. Therefore, dreams reveal thoughts, expectations and attitudes.

The attitude which the sleeper takes in his dream has repercussions for the immediate future. Through the picture of the dream a certain emotion is created which then is carried into the new day, regardless whether the dreamer remembers the dream or not. The dream can be called the "factory of emotions" (Alfred Adler), because that is the function of the dream as a preparatory thought-process. Even the most colorless dream has a certain emotional tone which is significant not only of the dream, but for the whole personality of the dreamer in a given situation of life. This emotional training through dreams is probably one of the reasons why dreams appear so "senseless." One cause for this apparent nonsense of a dream is the above mentioned lack of verbal logic. However, it can be proven this is not the only reason why dreams remain obscure. Even the best trained psychotherapist, who has little difficulty in "understanding" the dreams of his patients, fails to grasp the meaning of his own dreams. This reluctance to interpret correctly ones own dream is the conse-

quence of the psychological function of the dream, namely to create certain emotions. All emotions serve the purpose of fortifying attitudes and actions. Their strength lies in the fact that their purpose is not recognized. If one realizes for what purpose one stimulates one's own emotion, let us say, of anger, of fear, of resentment, or even of elation, hate or love, if one would admit that all these emotions are self-created for a very definite purpose in every case—such admission would deprive the most violent emotion of its powerful drive. For this reason dreams must remain shrouded in mystery in order to be effective.

The meaning of dreams can be recognized by an objective and trained interpreter by looking for the purpose which the dream situation might have in the actual life situation of the dreamer. Without knowledge of the patient's problems and conflicts no dream can be accurately interpreted. The same dream might have completely different significance for each person. It is necessary to know what use a certain person could make of a certain dream. Some psychiatrists are inclined to regard definite dream elements as standard symbols, which are supposed to have the same meaning always, supposedly of a sexual nature. Our observations do not confirm such assumptions. The dreams are symbolic, but not for each individual in the same way. However, certain generalizations are possible. Traveling in the dream reflects the direction of the dreamer's life. Walking on a road or riding in a vehicle generally reflects the direction in which the dreamer moves at the particular time of his life. It is, therefore, significant whether the way goes upwards or downwards; what kind of obstacles have to be overcome and how they are met; whether the way is smooth or rough, beautiful or ugly, safe or dangerous. Flying dreams have different meanings, of course, whether the individual is actually concerned with airplanes or not. In the latter case it is generally an expression of the desire to be above the others, independent, of high position or exceptional ability. Again the outcome of the flying is significant, whether it ends in a crash or not. Dreams of being examined generally indicate a life-situation in which the patient feels tested. Through the dream he fortifies either a cautious or confident attitude toward the test situation. To dream gives either a green or a red light for going ahead at work, in social contact or in regard to sex. Dreams which occur over a long period of time generally signify more than an immediate situation: they are characteristic for the general outlook of the person. Dreams which are remembered as having occurred during early childhood have the same meaning as early recollections. When a patient, for instance, remembers that as a child he dreamed he was alone in an otherwise empty house which suddenly began to collapse, then we recognize the desire of an only child to impress himself with the danger of being left alone, a concept which probably signifies the whole life-style of this individual.

There are dreams which can be easily interpreted. They are so self-evident that everybody familiar with the structure of dreams can easily understand them, with the exception of the dreamer, of course. There are others whose significance is more hidden, where the connection between the content of the dreams and the life-situation of the dreamer is not obvious. As a rule, the more the dreamer knows about dream-psychology the more confused and complicated his dreams become. People who have not been exposed to psychotherapy or dynamic psychology in general have more obvious dreams. On the other hand it is often easy to recognize a patient who has read psychoanalytic literature or has been under psychoanalytic treatment. His dreams reveal the characteristic symbolism of this school. During psychotherapy dreams are of special significance. Very often they reveal the attitude of the patient toward psychotherapy.

A patient relates the following dream: He is in a life-boat with a man, looking for rescue. They see a merchant-ship and they steer toward it. Then they see a Japanese warship coming from beyond the horizon to capture the merchant-ship. They decide to steer away from the merchant-ship in order to avoid being captured.

It is obvious that the patient sees some danger in being rescued. The discussion of the dream and the present life-situation brings an admission from the patient that he is afraid of getting well. Then he would have to face the danger of life. Losing his symptoms would deprive him of an alibi to withdraw as soon as he felt exposed to situations where his prestige or his superiority was threatened. He preferred, at least at this particular moment, to sink, to drown, to go down in disease, father than to take a courageous stand in what he considered the battle of life.

The opposite stimulation in regard to therapy comes from the dream of a woman patient: She visits a girl friend who tells her husband of the patient's ailment, how sick she is, how much she suffers. The husband of the girl friend, however,

makes a remark that patient soon will get well. This dream marked the turning point in the treatment of this woman. She had been sick for many years since her husband had deserted her, leaving her with a social disease. Without going deeper in the case history, it may be said that she attributed her ailment and her misery in life to her husband. Previous to the dream she believed that she would never get well. It was for the first time that she envisaged the possibility of getting well—though it was only in her dream! It was highly significant that the statement 'she will get well" came from a man because her neurosis was directed principally against men whom she distrusted and feared. Through being sick she avoided contact with men and especially the possibility of getting married again. She needed the strong defense of a neurosis as she felt lonesome and realized the need of finding a new haven. Confronted with the analysis of the dream she acknowledged the correctness of the interpretation by saying, "Yes, I am sick of being sick."

These two dreams reflect directly the attitude of the patient toward therapy. A sudden inability of the patient to remember dreams is also significant. It might be either a protest against the therapist *or* against certain conclusions derived during the therapy. Sometimes the patient does not want to admit to himself what is going on in him. There are certain individuals who never remember dreams, others who even get furious if anybody mentions dreams. I had a patient who not only did not remember any dream himself, but reported how angry he got when he overheard his two daughters relating dreams to each other. He could not understand how intelligent people could waste their time in paying attention to such silly and senseless experiences like dreams. What he did not realize was his reluctance to admit his inner problem to himself. He had developed an idea of himself which was in no way in accordance with his real opinion. A certain type of ambitious people, who are able to sell themselves and their environment the picture of being a strong man, refuse to admit to themselves their fears and their feeling of inadequacy. Their pride stands in their way to self-recognition. Once they become courageous enough to face themselves as they really are, they also remember their dreams which, then, often show the symbols of danger and threat. These individuals are the same who often find it difficult to relate early recollections.

A typical example of such a type was a young man who could be considered highly successful. He had an influential position, was socially well liked and rather popular with men and women alike. He developed symptoms of impotence as soon as he considered getting married. It took him a long time to be convinced, after many unsuccessful attempts at medical and physical treatment of his impotence, that he needed psychiatric help. He was very slightly productive, did not have any dreams, nor did he remember anything of his early childhood. He denied any inferiority feelings and refused to recognize his impotence as a defense-mechanism against getting married. Only after many consultations did he lose his defensiveness against the psychological approach to his problem. Then dreams appeared when he felt attacked or was confronted with a situation of helplessness. Only then did he remember an incident which occurred when he was three years old. He was standing in the garden on a lawn. On the other side of a small path of pebbles stood his uncle, a man who was regarded with great respect by the whole family. (He was an outstanding scientist of considerable fame.) Patient remembers seeing this uncle on the other side of the path and himself crying for help, because he was afraid of walking by himself over the pebbles. This situation shows what the patient, the only son of an over-protective mother, really thought of himself. He had tried all his life—and successfully—to hide from himself and others that he did not consider himself a real man. We can understand his masculine inferiority when we realize that he compared himself with his famous uncle. That was the incentive to his success, but also the cause of his retreat, when his ability to play the role of a man was really put to a test by the threatening marriage. His willingness to remember his earliest recollections, and thereby to admit his inner feelings, was a prerequisite for remembering dreams.

The need to use dreams in psychotherapy emanates from their usefulness to indicate problems which otherwise might not come to the surface. A patient related several consecutive dreams during several weeks, in which he was attacked, chased or threatened by Negroes. The mere recognition of the emotional tone of these dreams was not sufficient. Patient had little contact with Negroes, did not have any special prejudice or fear in regard to Negroes and offered no solution why he constantly dreamed of Negroes. In such situations the technique of using free-associations in a limited sense is helpful.

(Continued on page 25)

THE THYROID ENIGMA

W. E. MacFarland, Ph.D.
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and Morton Podolsky, M.B.

SWELLING of the front of the neck was observed even in ancient times to be correlated with physiological stress. Much more prevalent in women, this variation was noted in relation to the menopause, menstrual period, pregnancy and other phenomena peculiarly female. It is said that the Romans believed such a change was sufficiently marked to be used as a criterion of prenuptial virginity; hence the custom of measuring the necks of prospective brides. Also from ancient times came the observation that goiter was prevalent in certain areas where myxedema and cretinism were of high incidence. The role of the thyroid gland in these conditions was not recognized until much later. In fact, not until the seventeenth century did the gland receive its present name from Thomas Wharton who noted that it appeared as a shield to the throat.

As with so many structures of the body, further knowledge of the thyroid, especially as to its function, awaited the experimental procedures of the nineteenth century. This development has followed a logical sequence down to the present time. As today, the first approach was to remove the gland and note the effects. In the early experiments with animals (Schiff, 1858), the result was death. Considerably later, thyroid substance was fed to myxedematous individuals with gratifying results. Transplantation of the gland, which had been found beneficial in animals, was also applied to humans with some success.

By 1900 several investigators (Baumann, Oswald, etc.) had shown that iodine was an important constituent of thyroid extracts. In 1916 Kendall extracted from the gland a crystalline compound which he called *thyroxin* of which iodine comprised sixty-five per cent. The therapeutic value of this compound was considerable and gave a clue as to why the ancients recommended sponges and sea weed—both rich in iodine—in the treatment of goiter. Goiter had been known to be more prevalent in Switzerland and other mountain areas where the iodine content of the soil and drinking water was low. On this basis Marine conducted a scientific survey of school children in the Great Lakes area where again the 'iodine level' was low. He found that the incidence of thyroid trouble could be cut down very effectively by iodine therapy. What appeared to be the climax of all this work on the thyroid was the synthesis of thyroxin in 1927 by Harington who had previously improved Kendall's method of extraction.

This was indeed a boon to the treatment of thyroid disorders as may be judged by the fact that Kendall required 6550 lbs. of fresh thyroid to obtain one ounce of thyroxin. Hoskins states that one of the first women to be treated over a period of years for hypothyroidism devoured the dessicated thyroid substance of several hundred sheep before she died at the age of seventy years.

As with other organs, the thyroid in disease exhibits basically two variations from the normal; that is, it either functions insufficiently for the needs of the organism or else it secretes in excess. The former condition was described in 1874 by Gull in several cases of myxedema and was correlated a few years later by Ord with atrophy of the thyroid. The clinical picture of Gull's disease, a form of hypothyroidism, is now well known and is marked by a sluggish metabolism, affecting the mentality accordingly. The symptoms of hyperthyroidism, first described by Parry in 1825 and Graves in 1835, are more commonly encountered and present a more serious problem to the clinician. It should be emphasized here that it is not the purpose of this paper to discuss in detail all the clinical entities of hypo- and hyper-thyroidism except insofar as they may throw light on the function of the gland. In other words, we are interested in what happens to the thyroid cells to produce colloid or endemic goiter, toxic and non-toxic adenoma, and hyperplastic goiter. The usual symptoms of Graves' disease are strikingly reminiscent of protracted sympathetic stimulation. Characteristically, in addition to a hyperplastic goiter, there is an increased metabolic rate, tachycardia, exophthalmos, and a fine tremor.

So far the situation is fairly clear-cut. It would appear that, in instances of hyposecretion, the patient should receive iodine, thyroxin, or dessicated thyroid; whereas, in hyper-secretion, a portion of the gland should be removed surgically. And indeed these procedures are followed with considerable success. But the number of cases which do not respond satisfactorily is sufficiently great to show that much is still to be desired in our understanding of the thyroid.

The thyroid gland displays certain morphological

and functional characteristics which tend to baffle analysis. Phylogenetically, it represents the transformed endostyle of lower chordates. Its method of development results in the formation of separate, closed, spheroid acini filled with a colloid; thus the central colloid is enclosed by a simple epithelium which is bounded on the outside by a rich vascular network. This situation somewhat obscures the true polarity of the secreting cells as, in some instances, the secretion is stored in the central colloid; but, in order to enter the blood stream, it must pass out the opposite poles of the cells. This apparent bipolarity or reversal of polarity is not elucidated to any great extent by the conflicting results of cytological investigtaion, although it is pretty well established that the cell organoids (Golgi apparatus, granules, etc.) are usually disposed in such a manner that the basal part of the epithelium is directed outward while the distal parts of the cells are in contact with the colloid.

Not only are the mechanics of secretion enigmatic but the physiological control and results of secretion have eluded any satisfactory analysis—that is, an analysis in which there are not several important exceptions. Specifically, the following are some of the questions which must be answered before a solution of thyroid function is reached: (1) How can iodine benefit patients suffering from either hypo- or hyper-thyroidism? (2) Why are extracts from hyperthyroid victims no more toxic than those from normal patients when administered to experimental animals? (3) Why is exophthalmos such a variable symptom in Graves' disease and why is it not present in experimental animals in which all the other classical symptoms of hyperthyroidism are induced by the thyroid hormone? (4) What causes the sudden onset of thyrotoxicosis in some instances in which there has been no previous history of thyroid trouble? (5) How can hypothyroidism exist in a case of hyperplastic goiter? If the answers to all these questions were readily forthcoming, we might understand also just how the thyroid exerts its influence on metabolism.

Certain facts are known, however, and new ones are continually being brought to light. First, regarding the factors controlling thyroid secretion, it is becoming increasingly apparent that the pituitary gland plays a dominant role. After hypophysectomy the thyroid fails to respond to stimuli which ordinarily produce hypertrophy or hyperplasia—i.e. cold or iodine lack. Sudden cessation of growth, sterility, mental dullness and other features of hypothyroidism follow removal of the pituitary. The whole picture is such that there is considerable doubt that the thyroid functions at all in the absence of the pituitary gland (Swann '43). The long nurtured suspicion that the cervical sympathetic trunks supplied secretory fibers to the thyroid epithelium has now been abandoned. Uotila ('39) showed in rats that hypophysectomy produces atrophy of the thyroid but that cutting the cervical sympathetics produced only mild hypothyroid effects, probably through the anterior pituitary. So the search for a neurological basis of hyperthyroidism has now led to the pituitary gland. Here again the demonstration or nerves to the anterior pituitary has been a matter for debate, although Truscott has recently ('44) studied nerve fibers entering the anterior lobe in the rat by way of the infundibular tract, pars intermedia, and small blood vessels, and he estimates there are some 2000 nerve fibers supplying this part of the gland. Some such nerve supply to the anterior lobe may serve to explain the symptoms of Graves' disease produced experimentally in cats by Cannon and associates ('15 and '40) by phrenico-sympathetic anastomoses. Such a neurological explanation for Graves' disease in humans is plausible although much more evidence is needed.

As we have shown in this laboratory (J. Exp. Zool., vol. 95, p. 345) certain endocrines, including the adrenal cortex, lack a secretory innervation and are controlled through the blood stream. It is most likely that the thyroid belongs to this category as previously mentioned (this journal, vol. 4(3, p. 11). In addition to the experimental evidence, the very fact that the thyroid reacts to such a wide range of bodily changes in a relatively slow manner speaks for the mediation of thyroid function through the blood stream. The picture we gather of thyroid function is one in which the secreting epithelium requires a delicate balance of environmental factors to function properly. Among those factors, the thyrotropic hormone is of the utmost importance, as either involution or hyperplasia of the thyroid may be brought about by too little or too much respectively of the anterior lobe fraction. Iodine is necessary as shown by colloid goiter formation when the supply is subnormal. Presumably, the thyroid cells react to a shortage of raw materials or, what may be essentially the same thing, an increased demand for its secretion, by hypertrophy and hyperplasia. The fact that controlled iodine administration can change a normal thyroid into a hypertrophic and hyperplastic state as the intake is steadily decreased and back again to

(Continued on page 26)

STUDIES ON PERFUSION FIXATION

HAROLD KOENIG

Many authorities feel there is room for improvement in histologic technique. The microscopic anatomist and pathologist usually apply a strictly scientific approach to the study of histologic material, but too often they neglect to apply that same approach to the preparation of histologic material.

The goal of the biologist, of course, is to prepare tissues in such a way that they appear essentially as they do in life. Of all the ordeals a fragment of animal tissue must endure before its structure can be visualized under the microscope, perhaps the most important single process is that of fixation. The essence of tissue fixation is the denaturation and the coagulation of tissue protein. It is the duty of the fixative to prevent the post mortem changes of autolysis and bacterial decomposition, to "fix" or render immutable the fundamental structure of the tissue, to prepare the tissue for the processes that are to follow. This is a big order for a single agent to carry out. Yet it is upon the faithful execution of this order that the vraisemblance of our tissue preparations depends. The success of any staining technique varies in direct proportion to the success of the fixing technique.

There are two general methods of fixing animal tissues; these are the immersion method and the perfusion method. In the former, small blocks of tissue are simply dropped into the fixing solution and permitted to remain there for a sufficient period of time. The fixative penetrates the interior of the tissue by the slow process of diffusion. The perfusion method of fixation, on the other hand, utilizes the vascular tree of the intact animal to convey the fixing fluid quickly and directly to every tissue of the body (with the exception of the avascular tissues). In this way the entire animal, while still in the living state, can be fixed in a few minutes.

The technique of perfusion fixation is a relatively simple one. The apparatus consists of a canula which communicates with two reservoir bottles by means of a Y-tube and rubber tubing. One bottle contains isotonic saline, the other contains the fixing fluid. These bottles are placed at the desired height above the animal to be perfused. The flow is controlled with screw clamps on the two rubber tubes. The heart of the anesthetized animal is exposed and the ascending aorta is cannulated thru an incision in the left ventricle. The right atrium is incised to permit exit to the blood and perfusate returning from the systemic circulation. The animal is first perfused with the saline under hydrostatic pressure until the blood is washed out of the vessels. This is followed by the fixing solution. The entire process takes only a few minutes. The desired organs may then be removed for further processing.

In a paper to be published in the near future, Windle, Groat, and Koenig analyze the perfusion method of fixation, point out the errors involved, and describe a method which attempts to eliminate these errors. In the course of investigation of several neurocytologic problems at the Institute of Neurology of Northwestern University Medical School, these men found that the animals gained a considerable amount of weight during perfusion. This increase in the weight of the animal was directly proportional to the hydrostatic pressure as measured by the vertical distance between the level of fluid in the reservoir bottle and the heart of the animal. In many instances this increase amounted to as much as twenty percent of the animal's weight. The brain, which was of particular interest to these observers, was found to be as much as thirty percent heavier than the average brain; grossly, presenting a considerably swollen appearance.

This observation led to a careful study of the perfusion method of fixation from the standpoint of the physicochemical factors involved in the preservation of the lifelike state of the tissues. The bulk of the experimental work was done with guinea pigs; how-

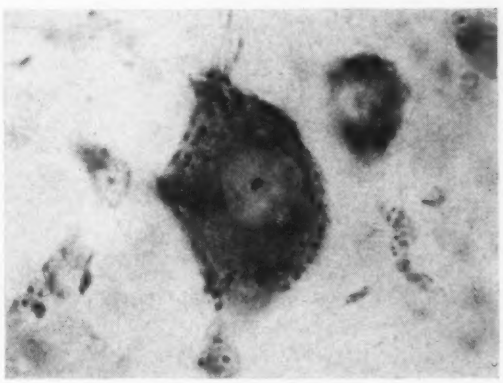

PLATE I

Neuron of reticular nucleus of pons from guinea pig perfused with isotonic saline followed by 10% formalin.

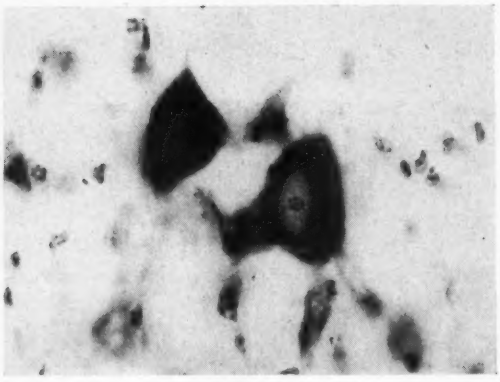

PLATE II
Neurons of reticular nucleus of pons from guinea pig perfused with isotonic saline followed by 5% NaCl in 10% formalin.

ever, comparable results were obtained with cats and monkeys. A method of fixation was finally evolved which, the authors believe, is carried out under conditions as nearly physiologic as possible and which fixes nerve tissue with a minimum of alteration of the life-like structure. Preliminary observations on other tissues fixed by this method indicate analogous results.

Early in the course of investigation it became evident that these animals should be perfused under a hydrostatic pressure that approximates their mean arterial pressure. The literature disclosed blood pressure values for the guinea pig that varied over a very broad range, so determinations were made on a series of guinea pigs. At first pentobarbital, ether, and vinethene were used to provide anesthesia, but these anesthetics depressed the animals unduly and values as low as twenty mm. Hg were recorded in the common carotid artery. Chloralose is a far more satisfactory anesthetic, for it doesn't depress the medullary centers. With this anesthetic, the mean arterial pressure in the common carotid artery of the guinea pig was found to be about seventy mm. Hg. Therefore, this was the perfusion pressure decided upon for the guinea pig. It is interesting to note that when animals were perfused at a hydrostatic pressure of 95 mm. Hg, some of the smaller blood vessels in the brain appeared overdistended and even ruptured.

The gain in weight of the animal and the resultant swelling of the tissues during fixation was obviously an undesirable effect. An analysis of the factors involved readily disclosed the reason. In the intact animal the circulatory volume is maintained and edema of the tissues prevented by a delicate balance of forces. On the one hand is the arterial pressure produced by the work of the heart; this arterial pressure, besides propelling the blood onward in its cyclic course, also tends to filter water thru the capillary endothelium into the tissue spaces. In addition, the protein content of the tissue fluid tends to attract water from the capillaries into the tissue spaces. On the other hand, the colloid osmotic pressure of the plasma proteins and the hydrostatic pressure of the tissue fluids tend to force water into the capillaries. Lymphatic drainage of the tissue fluids into the venous circulation is a third factor that increases the blood volume at the expense of the tissue fluid. The resultant of all of these forces in the normal living animal is the maintenance of a normal fluid distribution between the vascular and the interstitial fluid compartments.

In the animal that was perfused by the conventional technique, both the lymphatic drainage and the colloid osmotic pressure of the plasma proteins were absent. The inevitable consequence was an edema. Histologically, this was manifested by an increase in the tissue spaces and separation of the tissue elements from each other. Further analysis indicated an alteration in the relationship of the interstitial fluid compartment to the intracellular fluid compartment. This, of course, depended upon the osmotic nature of the perfusion fluid which would filter into the tissue spaces. Thus, it was reasoned that a hypotonic fixing solution would dilute the interstitial fluid and render it hypotonic to the intracellular contents. An endosmosis would result and the cells would swell. Conversely, a hypertonic fixing fluid would render the interstitial fluid hypertonic to the cell contents, and an exosmosis into the

(Continued on page 27)

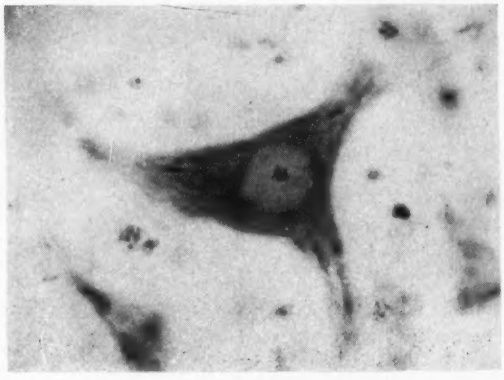

PLATE III
Neuron of reticular nucleus of pons from guinea pig perfused with isotonic saline acacia followed by isotonic saline acacia in 96.7% formalin.

THE ROLE OF PSYCHOSOMATIC MEDICINE

DON SHOEMAKER

IT HAS been said that even a fool may perceive a half-truth—and defend it vigorously; but only the genius can approach a realization of the whole truth. Yet this is the difficult goal of the affirmed psychosomatic physician. In making a medical diagnosis he must anticipate and search out all possible aspects of the problem before him, and correlate this knowledge into a perfect whole.

There is nothing new about psychosomatic medicine but the name. Since the time of Hippocrates the medical practitioner has recognized the interrelationship of emotional factors and organic disease. Heraclitus, a physician of the Pythagorean era, knew that disease was an outgrowth of obscure and diverse factors, and admonished his students that "wisdom is not the knowledge of many things; it is the appreciation of the fundamentals." In the sixteenth century Paracelsus noted the tendency toward emotional deviations in the chronically ill. Perhaps the first clearly defined concepts of the relationship came in the nineteenth century with the work of Freud. From his observations he concluded that "Conflicts excluded from consciousness create a permanent tension which may occasion persistent or recurrent disturbances of organic functions."[1] In the present century the work of the physiologists Pavlov and Cannon has done much to clarify the functional changes accompanying emotional disturbances.

Several important contributions to the field of Psychosomatic Medicine are to be found in the extensive literature of Individual Psychology. One of the earlier of these studies was Dr. Alfred Adler's "Organ Inferiority and its Psychical Compensation" which first appeared in this country in 1917 in the series of Nervous and Mental Disease Monographs published in Washington.

Further significant efforts from the same source are to be found in "Individual Psychology and Psychosomatic Disorders," a collection of papers which appeared in two volumes of "Individual Psychology Pamphlets" published under the editorship of Dr. F. G. Crookshank by the C. W. Daniel Co., London in 1932 and 1933.

In view of this history we are somewhat surprised to note the statement in the first issue of *Psychosomatic Medicine,* January 1939—as if a new and startling discovery had been made: "Psychic and somatic phenomena take place in the same biological system and are probably two aspects of the same process." However, such a simple and distinct declaration had become necessary. The trend toward specialization in psychiatry and medicine had progressed until there was little meeting of minds between the exponents of the two fields. For some years the practitioner of medicine had felt impelled to make a choice; he might join the ranks of the pathologists and seek the explanation for and the treatment of all leisons in the light of tissue changes; or he might enter the vague and mystic world of the psychological healers, and place his faith in the concept of mind over matter. The definition of the field of psychosomatic medicine was a step toward the better understanding of the nature of disease, a better understanding of the patient as a social unit, and thus a better diagnosis of the individual's ills.

The history of psychosomatic medicine as a defined branch of medical practice is a brief one. In January 1939 the journal *Psychosomatic Medicine, Experimental and Clinical Studies* was initiated, with a board of editors composed of heads of departments of such specialties as internal medicine, pediatrics, psychoanalysis, psychiatry and neurology. It is of interest to note that each of these editors must pass judgment upon every article submitted for publication in the journal. In December, 1942 a society for research in psychosomatic problems was inaugurated. In the same year the first textbook of psychosomatic medicine was published by Weiss and English; and full recognition of the field as a branch of medicine was given in the 14th edition of *Osler, The Principles and Practice of Medicine.* In 1943 came the publication of *Psychosomatic Diagnosis* by Dr. Flanders Dunbar, a book particularly valuable for instruction in the taking of case histories—a key procedure in psychosomatic diagnosis.

The definition of the field given by Dr. Christian in *Osler, The Principles and Practice of Medicine,* is worth repeating:[2]

> "Psychosomatic medicine is that part of medicine which is concerned with an appraisal of both the emotional and the physical mechanisms involved in the disease processes of the individual patient, with particular emphasis on the influence that these two factors exert on each other and on the individual as a whole."

Important though it is that psychosomatic medi-

cine be dignified as a definite part of medical practice, in doing so there is the ever present danger of inviting the attention of those lay writers upon medical topics who are ready to pounce upon new aspects of medicine and present them to the public in the guise of spectacular discoveries. It is proverbial that such writers exploit both the knowledge of the physician—which is small, and the ignorance of the lay public—which is enormous. The success of the psychosomatic diagnosis depends upon the establishment of an atmosphere of confidence and trust between the physician and patient. This can scarcely be accomplished if the patient approaches the interview determined to conceal the presence of "psychic" factors in his case. It is to be fervently hoped that popular literature will ignore the field of psychosomatic medicine.

Let us examine more closely some of the basic concepts which lead to the institution of psychosomatic medicine as a branch of practice. Dunbar says: "We know now that bodily changes may be brought about by mental stimuli, by emotion, just as effectively as by bacteria and toxins, and that physiological changes accompanying emotion may disturb the function of any organ of the body."[3] Bergmann tells us that "we can no longer separate either nervous or organic, or functional or organic. If we think in terms of disturbed function the only adequate concept is that physical changes take place . . . in a series terminating in the gross anatomical."[4] Grinker has noted that in anxiety which is prolonged, psychological flight takes the direction of regressive and infantile modes of emotional expression. He states that "these result in visceral expression or organ dysfunctions, which we term organ neuroses, that constitute the first step toward organic disease."[5] Mohr comes to the conclusion that there is no such thing as a purely psychic illness or a purely physical one—but only a living event taking place in a living organism.[6]

It is now clear that the position of the psychosomatic physician is an intermediate one in medical practice. He must seek both the organic and psychic evidences of disease; and by means of careful evaluation and study, decide upon a course of treatment. He must overlook no possibility; and for this reason the taking of the case history is of vital importance. In addition to the points generally considered in the history, it is necessary to obtain a chronological review of familial and personal events, with the patient's response to each of these events carefully noted. This is a difficult task, but a necessary one, and the success or failure of the interview will depend upon the physician's ability to obtain and interpret facts concerning the patient's intimate reaction to past events.

The essayist writes: "It is the tragic necessity—but the salvation—of many a man that he should come to an irrevocable experience, to the realization that everything is lost. For with that moment, if he be strong, he is saved." This is a beautiful thought; and it expresses a type of sentimental philosophy which the human mind gladly accepts—but it is almost wholly untrue. Unfortunately, if the irrevocable experience causes a decided change in the individual—it will almost certainly be for the worse. The psychic changes induced by the inability of the individual to meet his problems face to face are cumulative; and no mystical force is likely to suddenly come to his rescue to turn back the overwhelming tide. If by the salvation of the individual is meant a proper emotional adjustment so that his problems may be solved—then only a carefully planned route can lead him back to security. The road back will probably be a long one; and it is the duty of the psychosomatic physician to supply the means with which to make the turn toward emotional stability and health.

Dunbar has found that the better the patient's adjustment prior to the episode that led him to seek treatment, the shorter the time required for treatment. This does not mean that patients suffering from acute disturbances are always easier to treat than those chronically ill. In many instances a chronic somatic dysfunction may have existed for twenty or thirty years along with a fairly good adjustment in other respects, and unless physiological dysfunction has resulted in severe structural damage, the response to treatment will be good.

It is not the purpose of this paper to discuss the mechanisms involved in the co-relationship between emotional disturbances and organic disease, nor the methods of treatment to be instituted after diagnosis has taken place. But in defining the role of psychosomatic medicine, we must review the types of disorders which are now considered to fall within its scope of practice. In the strictest sense, all disease has a psychosomatic aspect—since no illness is purely psychic or purely physical. However, for purposes of practical treatment at the present time, certain types of disease have been shown to fall distinctly into psychosomatic practice. Foremost among these are the gastro-intestinal and gynecological disorders. Crookshank's comments are interesting here: "It has always seemed odd . . . that doctors who, when students,

(Continued on page 29)

PENICILLIN THERAPEUTICS

LOUIS S. CHOLDEN

THE discovery and application of penicillin marks one of the most important advances in the history of chemotherapy. This antibiotic displays a specificity of toxic action that has brought it into the spotlight of medical attention. No less striking than its remarkable antibacterial potency, is its apparent lack of toxicity to the body. In this important attribute, Penicillin is unique among chemotherapeutic agents. Dubos defines the ideal chemotherapeutic agent as "one which exhibits great affinity for the parasite, but is inactive against the tissues of the host." Penicillin markedly exhibits this desirable effect. The chemical antiseptics in general are protoplasmic poisons, which are quickly destructive not only to the invading organisms, but to the tissue cells of the host as well.

The antibacterial activity of penicillin covers a wide range of organisms, the limits of which are not as yet determined. Greater efficacy is exhibited against the Gram positive bacteria, the Neisseria being among the few Gram negative organisms which are sensitive. Dubos[1] in an attempt to explain this difference in penicillin-sensitivity suggested that the chemical group responsible for the Gram-staining reaction is also involved in the reaction to penicillin.

In 1943 The Committee on Chemotherapeutic and Other Agents of the National Research Council under the chairmanship of Dr. Chester S. Keefer published their original report analyzing 500 cases treated with penicillin. Since that time, 3,000 cases have been compiled and Dr. Keefer has published the latest report of the Committee. In addition to the above, a number of separate reports have been presented by various authors. Thus, an impressive amount of clinical data is available for the evaluation of the antibiotic.

Table I includes recommendations presented by Dr. Keefer concerning the indications and contra-indications for the use of penicillin. In addition, other published data was drawn upon in order to present dosages, mode of administration, and other forms of therapy.

Methods of Administration

Local Application—Both the sodium and the calcium salts of penicillin have been used for local application. The calcium salt seems to be more satisfactory. For local treatment of wounds involving soft tissues and bone and for topical applications to infected surfaces, saline solutions containing 250 Oxford units per c.c. are suitable. Recently, Florey & Cairns[2] have used penicillin locally in two other forms. (1), as a dry homogeneous powder mixed together with sulfanilamide, the final mixture containing as much as 5,000 Oxford units of penicillin per gram. Unger[3] reports that there may be a synergistic action between penicillin and sulfonamides. (2) The British investigators have also used a cream containing lanette wax with 100 to 250 units of penicillin per gram.

Enteral Application—At the present time the administration of penicillin by either the oral or rectal route is not generally approved. Abraham[4] and his associates show that penicillin is relatively ineffective when administered orally since it is rapidly destroyed by the hydrochloric acid of the stomach. Enteric coating with salol did not solve the problem, for much of the penicillin was destroyed by bacterial enzymes. The use of sodium bicarbonate, however, did permit effective concentration of penicillin.

Some possibility of effective oral administration of penicillin is furnished by Meyer and Dawson's discovery that certain esters of penicillin, though ineffective in vitro, are hydrolyzed when administered orally, leading to the liberation of active penicillin. The present preparations, however, are still too toxic to permit clinical use.[5]

Intrathoracic Administration—In treatment of suppurative intrathoracic disease, such as empyema, it is desirable to supplement parenteral therapy with instillation of penicillin into the pleural space. In many instances empyema thus can be satisfactorily treated without resorting to surgical drainage. For this purpose, as a rule, 30,000 to 40,000 Oxford units in 30 to 40 c.c. of isotonic solution of sodium chloride can be instilled directly following thoracentesis. This procedure is carried out once every 24 to 48 hours.

Intra-Articular Instillation—Herrell, Nichols and Heilman[6] have found that fairly adequate amounts of penicillin reach the joint fluid after intramuscular or intravenous administration to patients suffering with acute or subacute suppurative disease of the joints. However, the concentration is half that of the blood. These authors have also supplemented systemic therapy by instillation of penicillin into the joint itself. Good results were obtained by this method.

Intrathecal Instillation—Rammelkamp and Keefer observed that penicillin does not pass from the blood

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Therapeutic Reference Table

CONDITIONS IN WHICH PENICILLIN IS THE BEST THERAPEUTIC AGENT AVAILABLE

CONDITION	MODE OF ADMINISTRATION	DOSAGE	DURATION AND COLLATERAL THERAPY
1. All staphylococcic infections with and without bacteremia:			
★ Acute Osteomyelitis	Intramuscular or Intravenous and Local	10,000 to 15,000 O. U. every 4 hours 250 to 500 O. U. per cc. NaCl solution	7 days or less; debridement and surgery as required
★ Chronic Osteomyelitis	Intramuscular or Intravenous and Local	20,000 O. U. every 4 hours 250 to 500 O. U. per cc. NaCl solution	According to response; debridement and surgery as required
★ Carbuncles; Soft Tissue Abscesses	Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	7 days or less
★ Chronic Abscess Formation	Intramuscular or Intravenous	20,000 O. U. every 4 hours	According to response
★ Acute Phlegmonous Cellulitis	Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	7 days or less
★ Meningitis	Intrathecal and Intramuscular or Intravenous	10,000 O. U. once or twice daily 10,000 to 15,000 O. U. every 4 hours if bacteremia is present	3 to 4 days; systemic measures as indicated
★ Cavernous or Lateral Sinus Thrombosis	Intramuscular or Intravenous	15,000 to 20,000 O. U. every 4 hours	7 to 10 days; supportive measures
★ Pneumonia (staphylococcic pulmonary infection)	Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	7 days or less; systemic measures
★ Empyema	Intrapleural (after aspiration)	20,000 O. U. in 30 to 40 cc. of NaCl solution once daily	3 to 4 days; systemic measures
★ Abscess of Kidney	Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	7 to 10 days
★ Suppurative Arthritis	Intra-articular	20,000 O. U. once daily	3 to 4 days; supportive measures
2. All clostridia infections:			
★ Gas Gangrene and Malignant Edema	Local and Intravenous Drip	250 to 500 O. U. per cc. NaCl solution 120,000 O. U. in NaCl solution daily	as required; antitoxin as early as possible
3. All hemolytic streptococcic infections with bacteremia and all serious local infections:			
★ Cellulitis	Intramuscular or Intravenous	10,000 O. U. every 4 hours	4 to 5 days
★ Mastoiditis	Local	250 to 500 O. U. per cc. NaCl solution every 6 hours	5 to 7 days
★ Mastoiditis with intracranial complications (meningitis, sinus thrombosis, etc.)	Local and Intrathecal and Intramuscular or Intravenous	250 to 500 O. U. per cc. NaCl solution every 6 hours 20,000 O. U. once daily 10,000 O. U. every 4 hours	4 to 5 days 2 to 3 days 4 to 5 days; systemic measures

CONDITION	MODE OF ADMINISTRATION	DOSAGE	DURATION AND COLLATERAL THERAPY
★ Pneumonia (streptococcic pulmonary infection)	Intramuscular or Intravenous	10,000 O. U. every 4 hours	4 to 5 days; supportive measures
★ Empyema	Intrapleural (after aspiration)	30,000 to 40,000 O. U. in 30 to 40 cc. NaCl solution once or twice daily	3 to 4 days
★ Puerperal Sepsis	Intramuscular or Intravenous	10,000 O. U. every 4 hours	4 to 5 days
★ Peritonitis	Intramuscular or Intravenous and	10,000 O. U. every 4 hours	4 to 5 days
	Intraperitoneal	20,000 O. U. once daily	3 to 4 days
4. All anaerobic streptococcic infections:			
★ Puerperal Sepsis	Intramuscular or Intravenous	15,000 O. U. every 4 hours	4 to 5 days; supportive measures
5. All pneumococcic infections:			
★ Meningitis	Intrathecal	20,000 O. U. once daily	2 to 3 days; systemic therapy
★ Pneumonia	Intramuscular or Intravenous	10,000 O. U. every 4 hours	3 to 4 days; supportive measures
★ Empyema	Intrapleural (after aspiration)	20,000 O. U. in 30 to 40 cc. NaCl solution every 2 days	6 to 8 days; systemic therapy
★ Endocarditis	Intramuscular or Intravenous	10,000 O. U. every 4 hours	According to response
6. All gonococcic infections (including sulfonamide-fast gonorrhea), also when complicated by:			
Ophthalmia Endocarditis Peritonitis Epididymitis	Intramuscular or Intravenous	10,000 O. U. every 3 hours	2 days; if bacteremia is present, continue until temperature has remained normal for 2 days
★ Arthritis	Intra-articular	20,000 O. U. once daily	2 days
	and Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	2 days; re bacteremia see above
7. All meningococcic infections:			
	Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	2 days; if bacteremia is present, continue until temperature has remained normal for 2 days
★ Meningitis	Intrathecal	20,000 O. U. once daily	2 days
	and Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	2 days; re bacteremia see above
8. Wounds (including compound fractures, burns):			
	Local (wet dressings)	250 to 500 O. U. per cc. NaCl solution	as required; surgical measures
	and Intramuscular or Intravenous	10,000 to 15,000 O. U. every 4 hours	According to response

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THE CAUSES OF DEATH IN INTESTINAL OBSTRUCTION

EARL ZAZOVE

WHEN the intestine is obstructed—because of kinking, intussusception, pressure from a growth, hernial ring, foreign body, or by experimental balloon or ligation—a marked syndrome follows, and unless proper measures are taken, death results. The symptoms which appear are: severe cramping pain, vomiting, prostration, shock, and death. The blood changes include reduction in plasma volume (from loss of fluid by vomiting and otherwise), decrease in chloride level, and rise in N. P. N. and fibrinogen levels. In advanced cases the bowl loses its tonus and may not regain it even after the obstruction is removed. The severity of symptoms and suddeness of death (without treatment) is directly proportional to the percentage of the gut which has been cut off; although complete colonic obstruction will bring about death in two months, a duodenal block will kill the patient in less than a week.

Many theories have been advanced in an attempt to explain these symptoms. They can be classified as follows, and I will consider them in this order:

I. Mechanical:
   Blockage and starvation
II. Toxic:
   A. Bacterial
   B. Tissue toxins
   C. Proteose
III. Physiological:
   A. Hyperpotassemia
   B. Shock
   C. Dehydration and dechlorination
   D. Nervous

Mechanical. Intestinal blockage and subsequent starvation is the most obvious theory, but it is quickly disposed of, for food can be introduced intravenously and the prognosis remains the same—death!

Toxic. Because of the enormous numbers of bacteria which are normally present in the intestines, it is logical to wonder whether, under conditions of stasis, they might not cause trouble, especially the anaerobes. Therefore *Clostridium welchii* has long been accused of being the fatal agent, but all proof is lacking. Antiseptics introduced into the occluded intestine beyond the point of blockage have no effect. No one has found increased numbers of *Clostridium welchii* postmortem in a throttled gut. The same holds true for all other bacteria. Finally, the bacteria are most concentrated in the lower gut, and ligation there gives the best prognosis, while quick death follows obstruction at the duodenal level, which is practically sterile.

However, the bacteria do cause decomposition of the protein products in the intestines, and this produces more, and different, toxins. Histamine has been especially investigated. But again, histamine is most concentrated in the lower gut, and the lower the damming up, the less severe are the symptoms. We must eliminate toxins as a probable cause, because they are all at highest concentration in the lower bowel. Even the theory that gangrene toxins are responsible (gangrene is produced when the constricted bowel pinches off its own blood supply) must be discarded, because if this were so, the prognosis would be similar regardless of where the bowel was obstructed. And, as I have pointed out before, such is not the case.

Before leaving the toxin theories, I would like to mention the work of Whipple and co-workers, who extracted a proteose substance from the mucosa of the obstructed bowel which could not be extracted from normal bowel. It is harmless when placed in the gastro-intestinal tract, but fatal if injected intravenously. Therefore, Whipple proposed a toxemia theory. The proteose, acting on body tissues, accounts for the high NPN and fibrinogen concentrations which are a feature of the syndrome we are discussing. However, Whipple's theory has not been substantiated by newer work.

Physiological. Zwemer and co-workers stated that a high blood potassium concentration is the cause of death, but this, too, has never been substantiated by others. Besides, the potassium concentration usually rises in intestinal obstruction only at the time of death.

Shock has been cited as a possible cause of death. The condition of shock is probably brought about in this case by fluid loss into the distended bowel. This theory does not work well in practice, for the shock does not appear until the end of the syndrome. And, once again, blocking at the upper end of the gut, where least fluid can be lost, causes the most severe symptoms.

Animals which survive ligation show marked dehydration. It is thought that this is due to vomiting and life can be prolonged by intravenous saline injection. But water alone or glucose solution will not prolong life. The dehydration is the result of chloride

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PARASITOLOGY IN ONE EASY LESSON

by

HOMO PSEUDOSAPIENS, *Doctor of Parasitology*

"Parasite" is the most abused terminus technicus on earth. It is applied, according to the political and/or moral concept of the person who utters it, to big businessmen, gold-diggers and imperialists. It is, however, quite impossible for the writer of these lines to understand how anyone, with at least a microgamma of sense for beauty, can be so bold and so blind as to compare the marvelous glamour of the crown of a Macacanthorrhinus hirudinaceus with the vulgar features of human hair, even if it is blond and followed caudally with a so-called fair complexion displaying regular features and, more distally, attached to well-rounded, symmetrical human strobilia. Neither does it seem permissible and tasteful to offend real animal parasites by comparing them with the rugged fat-belly sitting on the top of his money-chest, as one sees the "parasitic" bourgeois in the cartoons of the press!

When we approach parasitology, our minds must be cleansed of evil thoughts, wickedness, and human hatred. We must inhale this sublime Science of Bugs, Worms and Allied Specimens with a reverence that is never displayed towards any other (and, naturally, much inferior) branch of human knowledge. The achievement of such a serene atmosphere and internal peace is indispensable, for parasitology has everything that other sciences have not. It is descriptive, depictive, analytical, deductive, inductive, seductive, systematic and imaginative; the last feature being demonstrated in its full force and marvelous beauty when parasitology is used as the supreme tool for the education of future physicians, i.e., in courses of Medical Parasitology.

For the initiated, parasitology is composed of two parts. One part is the equivalent of the classic old-Hellenic telephone book that Heriostrate used when he called up the newspapers of Athens and wanted to be registered for immortality because he laid the torch to the temple of Diana at Ephesus. This part of parasitology is composed of double words, the first of them standing for the genus, the second signifying the species. These words are ruled by strict laws and prerequisites. The first and most outstanding of such regulations is that, with a few and most regrettable exceptions, no names of parasites, shall have less than fifteen syllables. The second law states that the less the parasite is known the more synonyms must be attached to it.

The second part of parasitology, considered less important by many authorities here and abroad, concerns itself with laboratory exercises, using parasites as a basic material. A full description of this chapter will be given later.

Here we insert the roll-call and then plunge right headlong into that part of today's lecture which may be called "Special Parasitology."

Here two more subdivisions of parasitology should be kept in mind. One of them is the theory, the second is the practice. Both aspects are encountered also in other branches of science applied to medicine, e.g., in dietetics. Imagine a case, a patient, who has a disease. The brilliant diagnosis has just been established, thanks to our outstanding medical abilities and superior training. It is decided to give him a diet. The formula will run: low residua, high calories, low carbohydrates, high vitamins A,B,C,D,E,F,G,H,I, etc. to z^1, z^2, z^3 (Excuse, please—I run over into the flagellar antigens of Salmonella, but it does not matter overmuch). In short, the patient is told to eat calories and vitamins. This is the strict theory. But the patient will stick to corned beef and cabbage, as Jiggs does. That is the vulgar practice. Now, things behave similarly in parasitology. Text-book, i.e., theory, and actual practice may tip-toe on somewhat divergent war paths. Nevertheless the text-book is the fundamental base. There are different species and subspecies of text-books. Such a book may be a collection of dadaistic stone-age wall-scrapings dating back to Aristotle, Galen and the phantasmagoria period of the much-self-advertised Tropical Institute of Hamburg. Or it may be the product of a more sensitive, impressionistic mind that was deeply influenced by Cézanne and the Dutch School. Some books adhere to the naturalistic-realistic style of pictorial reporting with all the necessary trimmings, as the noble tail dots of Filaria and, in order to demonstrate what things have to be really seen, with nuclei of the amoebas as big as an oversized amarillo egg. Finally, there are two or three books with photographs and good sketches, rare exceptions to the universal rule, which present real pictures of real parasites. It is easy to understand, however, that such text books are not used generally because most of the fun experienced nowadays in courses of parasitology would be missed by both staff and student body if such texts should become known on a nation-wide scale.

As soon as the student has made up his mind from a text-book as to how The Parasite should look, according to the natural rules of science invented by the research investigators, his mind is deeply shaken by the demonstration microscope that shows him something entirely different from his dream-ideal of The Parasite. Finally, as soon as he has proceeded in his conversion so far that he accepts the "demonstration slide" as his guide towards further personal happiness, Fate kicks him again in his pants with playful cruelty in the form of "material for class use." This "material," boldly and optimistically put on the student's desk by the daring instructor, with a special and over-detailed request as to how to handle it, is received as trustingly as small Middle European nations have been listening to Germany and Austria for the last couple of centuries. The "material" is smelled, looked at, touched, then cunningly put through a highly refined procedure which varies somewhat according to the temperament, political disposition and draft status of the student. This procedure is composed of ancient Inca moon rites, Indian war offerings, Bantu harvest blessings and folk-dances from Outer Mongolia, but reveals also traces of Eskimo fish worship.

Because of the most regrettable absence of a radio apparatus, the proper music is supplied in an off key obligato by The Students themselves, humming Stravinsky's Le Sacre de Printemps with a slight admixture of an atonal transcription of Besa Me Mucho.

When the above said "material" is considered ripe for miscroscopic examination and, so to say, enters the "practical" phase of its development, a deep split occurs in the subconscious, conscious and metaconscious mind of all interested parties. Both inimical camps, instructors and students, have to do much fast talking to persuade each other that:

1. the débris, precipitation of stain and uncertain nuclear elements under the microscope came from the "material" passed out for class use.
2. there was, or is, or is supposed to exist, a certain relationship between text-book picture, demonstration slide and the present microscopic torso of the parasite.

In order to achieve a negotiated peace between the fighting parties, many concessions have to be made on both sides. This peace, as every negotiated one, leads to a temporary suspension of hostilities: in the given case, until the next laboratory period.

As to the side-show values of parasitology, geography and its mastery play the most important role. The author of this article firmly hopes that some beautiful day Geography I and II will be introduced as preliminary requirements for admission to a medical school. The study of geography is an important ways and means for those who sincerely want to understand parasitology and its progress. How can anyone, without the knowledge of geography, fully appreciate how much it means when a big article appears in a journal stating that Raillietina luisaleoni frequently found in Nicaragua was discovered by somebody also in Honduras?

The solution of the basic problems of parasitology, as presented in the above chapters, fully justify a more detailed, specific description of the parasites proper, so that The Student may use this article as a guide in his laboratory research, self-education and self-edification.

For the convenience of parasitologists, parasitology is divided into "bugology proper" or entomology; "wormology" or helminthology and "one-cellulology" or protozoology.

In entomology, the most outstanding part busies itself with snakes, spiders and scorpions. This part is the most outstanding sector of entomology, because it does not belong there at all. Yet the Black Widow Spider attracts the interest even of the most rugged blond fan and the Florida Scorpion is loved and revered even by the hardest-boiled partisan of tequila. As to other bugs, Walt Disney's cartoon on the Seven Dwarfs and mosquito control takes care of this chapter better than any collection of text-books and series of lectures. Unfortunately, there are no cartoons

(Continued on page 30)

DIAGNOSTIC PROBLEM

MILTON WOHL

E. J., a white female 54 years old, was admitted to the hospital with the following *principal complaints:* redness of the arms and face for 1 year; diarrhea for 6 months; loss of appetite for 6 months; loss of strength in the arms and neck for 3 months.

History: The patient was perfectly well until 1 year ago when she noticed redness, puffiness and itching of the eyelids which had insidiously become more extensive until at the time of entrance it involved the entire face, neck and the extensor surfaces of the arms. The muscles were tender and weak, and during the past 3 months she had been unable to lift her head from her bed.

About 6 months before she had begun to suffer from recurring bouts of diarrhea and loss of appetite. Each episode of diarrhea would last about a week, intermit for 2 to 3 weeks, and then recur. Previous to these attacks, her bowls were perfectly normal. There were no other G.I. symptoms. The stools were described as being dark green, occasionally brown, and soft and watery, never red, tarry or containing pus or mucus.

She had jaundice 15 years before, and had lost about 50 pounds in the last year. There were no other symptoms.

Physical examination revealed a fairly well nourished, well-developed white female lying quietly in bed, not appearing acutely ill. Blood pressure was 135/85, pulse 96, temperature 99° F. There was a diffuse erythema and scaliness of the face, neck, upper thorax and shoulders, and extensor surfaces of the arms. Ears, nose, throat, mouth, tongue and teeth were negative. The muscles of the neck were markedly weak. Breasts, lungs and heart were negative. The abdomen was scaphoid; there was no tenderness, rigidity or fluid. The liver was three fingers below the costal margin in the midclavicular line; its edge was hard, and it seemed nodular. A questionable, hard, irregular mass was felt in the periumbilical region. Kidney and spleen were not felt. The bowel sounds were normal. On bimanual examination, the cervix felt hard and nodular with transverse lacerations; the pelvic organs were firm and fixed, with some induration in both vaults. On rectal exploration, a hard, firm, nodular mass was felt at the tip of the examining finger.

The extremities showed the erythema already described. There was weakness and numbness of the fingers, atrophic thenar eminences and interossei. The patient was unable to oppose the thumb and small finger of either hand. The reflexes were normal throughout. There were no sensory disturbances. The arm, shoulder and neck muscles were weak.

Laboratory findings: Hemoglobin 51%; red count 3,020,000; white count 5,000:

polymorphonuclears	77%	toxic	+
eosinophils	1	target cells	
basophils	1	anisocytes	++
lymphocytes	6	poikilocytes	++
monocytes	15	polychromatophilic	+

Serum protein 4.7: albumin 2.9
globulin 1.8

The Kahn test was negative, the B.M.R. was + 15. An x-ray of the chest was negative. A barium enema was given, and a filling defect in the rectosigmoid portion of the bowel was found on fluoroscopy and x-ray.

For biopsy report and diagnosis, see page 39.

ACKNOWLEDGMENT

To the Editor of the QUARTERLY:

In the article "Essentials of Diabetic Management" which appeared in the last issue of the QUARTERLY we inadvertently neglected to give credit to Z. Aarons who was of considerable assistance in editing the article.

Samuel J. Taub, M.D.
Lester Rice, M.S.
William H. Shlaes, B.S.

* * * *

It takes thousands of nuts to put an automobile together, but just one to scatter it all over the road.

* * * *

Confucius' brother say
Confucius talk too
Damn much!!

* * * *

Teacher: "Now, Tommy. Suppose a man gave you $1,000 to keep for him and then died. What would you do? Would you pray for him?"

Tommy: "No, sir; but I would pray for another like him."

* * * *

A curious custom of Mohammedan ladies after marriage is to rid themselves of the hirsute appendages of the pubis.

* * * *

An institution is the lengthened shadow of one man.—Emerson.

Alumni News

1897—Dr. Charles Hadden Parker of Santa Cruz, California, sends his greetings, and informs us that "the magazine is tops and very informative." The QUARTERLY thanks Dr. Parker for his very fine compliment and wishes him continued success in his practice.

1904—Greetings have been received by the QUARTERLY from Dr. Ben W. Kinsey. Dr. Kinsey is now residing in San Antonio, Texas, and has retired from practice for a well deserved rest after many successful years of service to the medical profession.

1905—Word comes to us from Dr. John E. Koons of Chicago. Dr. Koons is well known to the students of the school for his excellent instruction in the Chicago Medical School Clinic. Dr. Koons is a specialist in Eye, Ear, Nose, and Throat; holds a Professorship at the Illinois Post Graduate School, and serves on the Medical Advisory Board No. 2 of the Illinois Selective Service.

1907—Dr. Dennis A. Bethea sends news of his activities in Hammond, Indiana. Dr. Bethea is on the visiting staff of St. Margaret's Hospital, enjoys a flourishing practice as a general practitioner and is extremely active in civic affairs.

1915—Dr. Clarence J. Munch thanks the QUARTERLY for bringing him news of classmates he had not seen since graduation. Dr. Munch is specializing in opthalmology and does some general practice in Culbertson, Montana.

1916—"Overhospitalization in Tuberculosis" is the title of a special article appearing in the U. S. V. A. Medical Bulletin of July. It is written by Dr. Albert Martin whose address is the U. S. V. A. Facility, Livermore, California. Dr. Martin is a tuberculosis specialist.

1917—Dr. Ernest A. Lourrier sends us greetings from Keyser, West Virginia. Dr. Lourrier is engaged in general practice and is the City Health Officer. He is also the Secretary of the Potomac Valley Medical Society.

1918—Will it be Dewey or Roosevelt? Ask Dr. Martin L. Morris of Pine Bluffs, Wyoming for the answer to this question. Dr. Morris is Mayor of Pine Bluffs, Deputy Coroner, and County Physician of East Laramie County. Dr. Morris also enjoys a large general practice.

1920—Greetings from Dr. E. Jerome Robinson of Chicago who is engaged in general practice.

1924—From far away Fort Morgan, Colorado, Dr. John K. Regehr sends word. Dr. Regehr is busily engaged in general practice, and devotes his spare moments to County Health Work.

Dr. Horace M. Finney is praticing here in Chicago. Dr. Finney is physician and surgeon for the Chicago Typographical Union, as well as being on the staff of Illinois Masonic Hospital.

1926—Dr. John E. Swenson informs us that he is now continuing his successful general practice at his new home on the West side. Dr. Swenson was formerly located at N. Clark Street for sixteen years.

General surgery is Dr. C. S. Van Oosten's field. Dr. Oosten is connected with Jackson Park Hospital where he is on the senior surgical staff, and holds a very important position as member of the executive staff, and holds a very important position as member of the executive staff of this thriving Chicago hospital.

Dr. J. B. Neason is continuing his work as general practitioner in Chicago.

1928—A case of leprosy in an individual who has lived in Chicago for forty years, is the proud discovery of Dr. Henry H. Morrison. Dr. Morrison is a dermatologist and is connected with Provident Hospital here in Chicago.

From the East, Dr. Henry Ruffu sends greetings. Dr. Ruffu was a student under Dr. Essenberg of the Microscopic Anatomy department, and says, "As a teacher he is a natural." Dr. Ruffu is a general practitioner in Atlantic City, New Jersey.

1929—Captain A. P. Tolentino of the Army Medical Corps writes us that he is attached to an Engineering Batallion at Camp Maxey, Texas. Dr. Tolentino entered the service in August, 1943, and was promoted to the rank of Captain in April, 1944.

1933—It is with extreme regret that the QUARTERLY announces the death of Captain Gayle Laymon while serving with the armed forces in Alaska. Captain Laymon had been in the army a year and had seen service in the invasion of Kiska. He was a competent member of the profession and a popular civic leader. He is survived by his widow and five children. The QUARTERLY extends its heartfelt sympathy to his family and friends.

Thanks to Captain A. Kushner for his new subscription. Captain Kushner is with the armed forces in England. His address is 609 Med. Ch. Co., APO 270, c/o P.M. N. Y., N. Y.

CAPTAIN GAYLE LAYMON

A new subscription has been received from Dr. Edward C. Meyer, physician and surgeon. Dr. Meyer is practicing here in Chicago.

Dr. Patrick Fahey, who has been practicing in Desplaines, Illinois, has been ill with a rheumatic heart since last Christmas. We are indeed sorry to hear this and hope that this issue will find him up and around again, enjoying the very best of health.

1934—Dr. John T. Porter is now a lieutenant colonel in the Medical Corps of the U. S. Army. Dr. Porter served on the North African Front and is now probably somewhere in England. His address is, APO No. 4377, New York, N. Y. He would enjoy hearing from some of his old buddies very much. How about it doctors?

1935—The Podolsky Clinic is the newly acquired asset of Dr. A. I. Podolsky of Yuma, Arizona. Dr. Podolsky is engaged in general surgery and medicine. Best wishes to you Dr. Podolsky in your new undertaking. We feel sure that under your excellent guidance the Podolsky Clinic will be a credit to you, the medical profession, and to the community.

1936—For, "meritorious achievement while participating in an aerial flight in the African theater on June 29, 1943." So reads the citation granting the Army Air Medal to Dr. Isidore Brill. Dr. Brill was practicing medicine in Champaign, Illinois at the time he entered the Air Transport Command of the Army in August, 1942. We can only add our congratulations for a job well done.

Greetings from Dr. W. J. Poshatske of Silsbee, Texas. Dr. Poshatske is doing sugery, and is being kept busy every moment.

1937—Lieutenant L. H. Weisskoff has recently completed a course in Military and Tropical Medicine at the Army Medical Center in Washington, D. C. The course was offered by the Army Medical School.

1938—Captain H. Paolozzi is somewhere in England. Captain Paolozzi writes that he is with a fine outfit, and that he believes "they will make their field hospital the best there is."

1938—Captain Herbert Tashman's new address is APO 5764, Med. Det., 252 F.A. Bn., c/o P.M., New York, N. Y.

Dr. Henry C. Paine informs us that he is now doing work at the Travis Co. Health Office in Austin, Texas.

1939—Dr. Ponziano P. Ferraraccio sends us his best of regards. Dr. Ferraraccio is engaged in general practice at St. Luke's Hospital, Bluefield, West Virginia.

1939—An article on "Vitamin A in Hypertension" was recently written by Dr. Albert M. Rosen. It was published in April 1944, in the Rocky Mountain Medical Journal. Dr. Rosen is presently engaged in general practice.

1940—First Lieutenant A. A. Palow of the Army Medical Corp. is stationed at the Carlisle Barracks, Pennsylvania.

1940—Dr. Frederick M. Kerr informs the QUARTERLY that he is busy with his private practice in Pittsfield, Mass. Dr. Kerr in addition is also City Physician and Assistant Physician at the General Electric Plant in Pittsfield.

Lieutenant Albert J. Bartolo's new address is Hq. and Hq. Det., 77th Ord. Bn. APO 5754, c/o P.M., New York, N.Y.

Dear Alumni: We should like to supply each and every one of you with a copy of each issue of the Quarterly as it comes out, and we, in cooperation with the Office Staff, attempt do so. However, a considerable number of copies of each issue are invariably returned because of incorrect addresses. We ask you to inform us promptly of any changes of address, whether civilian or military, so as to insure your receiving your copies.—The Editor.

MAJOR EDWARD J. MARTENS

1941—The QUARTERLY takes pride in announcing that Edward J. Martens has been promoted to the rank of major. Major Martens is Resident Surgeon of the Station Hospital at an AAF Fighter Station in England.

Lieutenant Smith Davis Taylor writes that he is somewhere in New Guinea. His address is 334 Station Hospital, APO 928, c/o P.M., San Francisco, Calif.

1942—Dr. David Edelson, now resident at the Utica General Hospital, has a recent article in the Archives of Ophthalmology on "Staphylococcic Thrombophlebitis of the Cavernous Sinus."

Lieutenant Aleksander J. Jablonowski is now stationed at Miami Beach, Fla. He is a member of the Army Ground and Service Forces Redistribution Station there.

Lots of luck to Dr. Nathan Horowitz who is at present residing in New York. Dr. Horowitz is a House Surgeon in New York.

Lieutenant N. J. Tedesco writes us that he is serving as a surgeon attached to the 303rd Engineering Battalion, in the Army Medical Corps. His address is 303rd Engr. Bn., 78th Inf. Div., Camp Pickett, Va.

The QUARTERLY wishes to thank First Lieutenant Samuel Stymacin for his compliments to the magazine. Lt. Stymacin writes: "I know of no better way in which to maintain contact with the school, and its students, past and present, than by reading this excellent publication." After having been at various camps throughout the country, Lieutenant Stymacin is at present stationed at Camp Adair, in Oregon.

1943—Our best wishes and heartiest congratulations are extended to Dr. and Mrs. Milton Dillon on the birth of their son, Robert Joseph Dillon.

PROMOTIONS AND NEW COMMISSIONS

Promotions

Major Edward J. Martens—'41
Captain A. P. Tolentino—'29

New Commissions

Lt. Albert J. Bartolo—'40
Lt. Aleksander J. Sablonowski
Lt. Taylor-Smith Davis
Lt. A. A. Palow—'40
Lt. N. J. Jedesco—'42
Capt. A. P. Tolentino—'29

Social Notes

We are pleased to make the following announcements:

Births

A son, David Michael, to Dr. and Mrs. Jerome S. Tobis (Class of 1943) on July 25, 1944.

A son, Robert Joseph, to Dr. and Mrs. Milton Dillon (Class of 1943) on April 6, 1944.

Marriages

Caroline Louise Gersen to Dr. David Whyte (Class of 1943) on August 27, 1944 in Toledo, Ohio.

Alice Miriam Farkas to Bernard Zelic Reizner (Class of 1946) on September 24, 1944 in Chicago.

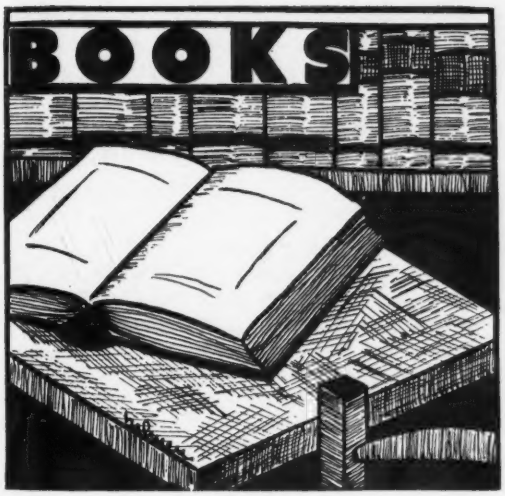
Shirley Mizes to Donald Morrison (Class of 1945) on September 24, 1944 in Chicago.

Engagements

Lucille Jeanette Dvorsay to Sidney Malitz (Class of 1946) on May 28, 1944 in Hammond, Indiana.

Estelle Lichtenberg to Nathan Sultan (Class of 1945) on September 4, 1944 in Chicago.

Heartiest congratulations to you all!



FUNDAMENTALS OF INTERNAL MEDICINE; by Wallace M. Yater, M.D., F.A.C.P.; D. Appleton-Century Co., New York, N. Y.; 1944; Second Edition; 1286 pp.—275 Illus.; $10.00.

There are students who do poorly in Medicine because they attempt to learn too much. They pore over their Cecil or Osler with the idea of mastering all of the written details, and consequently, when they are called upon to utilize their knowledge, they fail to discriminate between the important and unimportant details. The trees obscure the forest. A basic understanding of the disease is obscure to them.

What is most needed by students is a fundamental conceptualization of the disease, its pathogenesis, diagnosis and therapy. The various useful details will then fall into their places and will eventually be tempered by experience.

Some students are able to obtain this understanding by skimming their assignment before studying it in detail. Others, by reading an "outline" or a brief text. One of the more popular works in this group is the first edition of Dr. Yater's book. This second edition promises to be as popular as the first, primarily because of the identity in style and secondly, because of its up-to-date material.

The book is concise and relatively complete, the essential information is stressed by bold face type, there are many time-saving diagnostic tables, there are many useful ilustrations, and new sections on "Symptomatic and Supportive Treatment" and "Clinical Values and Useful Tables." Recent advances in Military Medicine and in the use of Penicillin are included.

The writing is lucid, interesting, and well styled.

E. C.

BIOCHEMISTRY FOR MEDICAL STUDENTS; by William Thorpe, M.A., Ph.D.; 39 Illust.; 3rd Ed.; Williams and Witkins, Baltimore, Md.; 1943 viii—476 pp.

The author, in his preface, found this reviewer in complete agreement when he states that he is well aware of the small amount of time which most medical students are able to devote to the study of biochemistry and therefore he has "tried to provide what the medical or dental student may want to know and omit that which he is never liable to require."

However, the author over-sympathizes with the lot of the medical student (or underestimates what he wants to know) for he has made this textbook an over-concise factual text without giving the embellishments that make biochemistry a living science. Thus there is a minimum of clinical description pertaining to the field, and more important, the author has left out many of the newer work and theories. The chapter on hormones has been reduced to a superficial discussion and is an example of what harm can be done in cutting things out.

On the other hand it is a good review book for those who have had a course in biochemistry before or for those who want to pass an exam by studying the night before.

Sidney Ketyer

AN ILLUSTRATED LABORATORY MANUAL OF PARASITOLOGY. By Ramon M. Cable. 112 pages, 104 illustrations. Burgess Publishing Company. Minneapolis, Minn. 1943.

Indiana has a tradition in parasitology and her universities are well on the way toward becoming the leading centers of this science in the Middle West. Cable's book is a testimony of such efforts. While it grew out of a class manual, it deserves to be used not only by students, but also by practical parasitologists, mainly for the excellent tables of the life cycles of the parasites, good figures, carefully selected list of references and for an outstanding chapter on laboratory methods and microtechnique. While it is not primarily designed for students of medical parasitology, it is the opinion of the referent that Cable's book is also of great value in courses for future physicians.

Dr. Oscar Felsenfeld

SYNOPSIS OF TROPICAL MEDICINE. By Sir Philip Manson-Bahr. xlii and 224 pages, 5 plates. Cassel and Company, London. In commission of Williams and Wilkins Company, Baltimore, 1943.

As one cannot imagine a mountain climber starting out for a mountain without a stick and knapsack, in the same way it is difficult to expect a physician to go to a warm country without Manson's Manual. Increased demand for this book, together with war-time shortage of paper and difficulties in transportation, led to the publication of a Synopsis which, however, should not be considered the quintessence of the original Manual. Even though the number of mistakes in it is small, they are misleading because of the condensed description of the diseases. Many of the drugs mentioned in the book are unknown to the average American physician. Upon reading the book, one has the feeling that the author has much more to say, but cannot because of the lack of space. The Synopsis is an excellent pocket book for those who have an average knowledge of tropical medicine, but not for the beginner. Those who wish to have a single book on tropical medicine, should wait for the next edition of the original Manual, which is now in preparation. In the Synopsis, one cannot but admire the ability of Sir Philip to select, organize and present in an excellent form the essentials of the enormously large field of tropical medicine. The qualities mentioned are strong enough to make the book a very good publication.

Dr. Oscar Felsenfeld

LECCIONES DE PARASITOLOGIA Y MEDICINA TROPICAL. By Pedro Kouri and Jose G. Basnuevo, with the collaboration of Drederico Sotolongo. Second edition. Vol. I and IIa and IIb; 126, 311 and 336 pages; 12, 183 and 256 figures. El Siglo, La Habana, 1943/1944.

The roots of Ibero-American science reach back into the age of the flourishing of Spain, which, in turn, developed from Arabian, Greek and Roman elements. When transplanted into the New World, the new experiences were fertilized, not only through the influence of the great Northern Anglo-Saxon countries, but also by the careful following of the achievements of the mother country on the Iberian peninsula and of the sister-nation France, whose language is so easily understood by Spanish speaking nations. Using the selective principle, but retaining the great power of observation and imagination so characteristic of them, our southern neighbors built up admirable centers of research and science in those places where economic conditions were favorable for such development. To name only a few, the schools of Leon Blanco in Mexico, Fontes in Brasil, Hormaeche in Uruguay and Kouri in Havana are equal in importance to similar centers in any other part of the world. Unfortunately, until lately, Anglo-Saxon science did not make much use of the achievements of Spanish and Ibero-American research workers. Therefore it is more than a satisfaction for the referent, who was nourished and raised on French and Spanish culture, to have the opportunity to present his opinion on the second edition of an Ibero-American book, the first edition of which earned much deserved recognition also in the United States of North America, parts of it being included in Gradwohl's Manual, and illustrations from it used in Nauss' Parasitology.

The book of Kouri and Basneuvo has a specific flavor. In spite of its strictly scientific contents, it is easy to read. The presentation of the material is very systematic. The first volume contains a general introduction to parasitology, the second is devoted to helminthology, whereas the third part will contain protozoology and entomology. The illustrations are excellent. With a few exceptions, original photographs are used. They are the best the referent has ever seen in a book of parasitology. A good feature of the illustrations is that very often many individual parasites are given in one picture. The schematic drawings are clear and impressive. As to the system used in the book, Kouri and Basnuevo always intend to make clear the taxonomic position of the organism in question, using tabulations quite frequently. Another strong point of the book is the presentation of cases of infections, again based upon visual aids. The photographs of clinical cases and pathologic material also deserve admiration. While occasionally one would like to read more about the therapy than the book gives, the description of the organisms and the discussion of the names leave nothing to be added.

The referent believes that Kouri's and Basnuevo's book is the ideal manual for students, physicians and laboratory workers. It should be on the book shelves of everybody studying this science.

Dr. Oscar Felsenfeld

* * * *

"Since the scope of medicine is the possible and not the inevitable, and since death is inevitable and necessary, it is impossible for a physician to be useful and praiseworthy to all mankind."

THE MEANING OF DREAMS

(Continued from page 6)

As a rule, we found it not necessary to use extensive free-associations which might explain all the details of the dreams of our patients. It is generally satisfactory and sufficient to know the general direction of the dream without wasting too much time and effort to discover from where the details of the dream-material came. This dream gives a good example for the use of—as it may be called—limited free-association. The patient was asked what came to his mind when he thought of Negroes. Then he remembered that not long ago they had a colored janitor. This man, who appeared to be a gentle, nice fellow, found his wife in bed with another man, whereupon, in rage, he took a knife and actually cut the man wide open. He was convicted for life for this murder. This association immediately revealed the significance of the dream Patient was involved in a relationship with a woman and had just found out that she was married. He was in a conflict between giving up the woman he loved, or facing the consequences. With the dream he obviously stimulated himself in the direction of breaking up the relationship.

Dreams provide the most dramatic experience for patient and therapist alike when they reveal the changes which occur in the patient during therapy. One of my patients had a very peculiar type of dream. All his dreams were rather short and without any action. He did in his dreams what he did in life; he continuously figured out the best way of getting out of a problem, mostly without actually doing anything. He dreamed about difficult situations, figuring out what would happen if he acted in one or the other way, but even in his dreams nothing actually happened. When his dreams started to move and become active he started to move in his life, too.

A woman had the following dream: She had guests in her home. In the yard below her porch was a tramp behind a *lilac* bush. Her little daughter went out. Patient was frightened that the tramp would grab her, so she went out herself. There was a little cat instead of her little daughter. Patient took her in. It was a child and still a cat. Then she saw the tramp embracing a cat which leaped out between his arms. Patient lost her fear of the tramp and considered maybe he was harmless.

It is not so difficult to understand this dream when one knows that this woman felt strongly antagonistic against her little daughter whom she blamed for her inability to enjoy and maintain social contact. (The identification of her little girl with a cat reveals the patient's attitude toward feminine tricks which were frequently used by her little daughter.) Patient is divorced from her husband and very much afraid of men who might bring new hardship upon her. But the tramp fondles the cat. Maybe her girl needs a father, and maybe it would be more advantageous than dangerous to contemplate marriage. The dream indicated the first shy attempt of patient to reorientate herself toward men.

Another patient dreamed about picking candies which had colors inside. These candies signified prizes to be won. There was one big prize to be won—a watch. Thus patient picks the rest of the candies while another fellow gets one, too. Finally patient gets the watch only to discover that it was second hand. He consoles himself that it is still a good watch, better than a cheap new one. However, the proprietor asks patient to pay a second time and asked for too much money, but patient still considers the watch is worth it.

One can easily see in this dream how much concerned patient is with getting things as cheaply as possible. That was actually his life style: getting as much as possible for the least amount of effort. However, this dream signifies progress. Previously, only the best was good enough for him. He could not stand being cheated and he was unable to accept anything short of the best. He now tries to be satisfied with less. Recognizing his attitude after the dream was interpreted to him, helped greatly in speeding his adjustment.

In our culture, where we have to maintain the appearance of a social and civilized human being, without being sufficiently trained for cooperation and social participation, much of our inner life has to remain under the surface. Our conscience does not permit us to admit even to ourselves our attitudes and tendencies. The world of the dream is strictly and rigidly separated from the world of reality. Only those who do not keep a strict distinction between imagination and reality, act out their dreams. Here are the day-dreamers and the people who live in a dream-world of poetry and fantasy. They often actually walk in their sleep, as they dream while walking. The emotions in the dream are capable of breaking down the barrier to conscious action by making

the sleeper talk or move his body or limbs when the dream becomes too exciting. Similarly, overwhelming inner emotions might drive individuals, who are predisposed to losing contact with the logic of life, called reality, into dream-like actions. Schizophrenia and other psychoses are mental states which resemble very much the dream-life of the normal person. The content of hallucinations and delusions can be similarly interpreted as dreams. On the other hand, the dream-life of the normal person proves how much creative imagination is dormant in everybody and waits for rediscovery. Our dreams prove that we have not actually lost neither the imaginative ability of our childhood nor the creative imagination of our adolescence.

THE THYROID ENIGMA

(Continued from page 8)

the normal condition by increased iodine dosage yields a valuable clue to the inter-relationships of many thyroid variations observed in the clinic. According to Marine, continued extreme stimulation —iodine lack—may cause the hyperplastic gland to atrophy. Just what relation this type of hyperplastic gland bears to that observed in 'toxic' goiter cannot be answered at present but it is a fact that thyrotoxicosis presents the most serious problem among thyroid disorders and appears to represent a separate category.

Any medical condition which requires surgical intervention is an indication that medical science has found no adequate treatment for that condition. This fact is especially true for thyrotoxicosis. In spite of the rapid progress of surgery, the sequelae of recurrences and exacerbations or post-operative myxedema are much too common (Fitz, '44).

In 1941 while investigating the ability of sulfaguanidine and sulfonamides to combat intestinal infections in rats, several investigators (MacKenzie and MacKenzie '41and '43) noticed a simultaneous production of thyroid enlargement. The widespread use of the sulfa drugs both in therapy and prophylaxis demanded inquiry into this new manifestation. Inasmuch as this effect in no way paralleled the bacteriostatic effect, a new therapeutic use of these drugs was sought.

Iodine deficiency has long been believed to be the greatest cause of thyroid hyperplasia, but recent investigations have shown that a number of drugs can do this (Astwood et al '43); the foremost being thiourea, allyl thiourea, thiouracil, certain sulfa drugs, in addition to a host of hormones. These substances are capable of producing thyroid hypertrophy and hyperplasia, which is accompanied by a marked drop in basal metabolic rate. Both of these changes are prevented or cured by the administration of thyroxin, or by hypophysectomy, but not by increasing iodine in the diet. Estrone which decreases the B.M.R. of hyperthyroid patients, and has been used to some extent pre-operatively instead of iodine, has also failed to affect the hyperplastic thyroid of rats fed thiourea (Segaloff, '44).

Grossly, the thyroid of animals fed thiourea, sulfa drugs or thiouracil, showed a marked enlargement of all parts of the gland; the isthmus was broadened and thickened, and the entire mass was very red, suggestive of an increased blood supply. Microscopically, there was an increase in the height of acinar cells followed by a loss of colloid from the follicles. An apparent increase in the number of follicles, and extreme budding with variations in size, shape, and chromatin content of the nuclei occurred. The degree of hyperplasia varies directly with the drug level. This picture is similar to that of iodine deficiency in human goiter (Goldsmith et al, '44).

Many theories have been offered to explain the mode of action of these drugs and their effects, but few can account for the apparent incongruity of hyperplasia in the presence of symptoms of hypothyroidism. The most logical interpretations are: (1) These substances inhibit the normal effect of thyroid hormone on tissues in general. (2) These substances interfere with the adequate production and synthesis of normal thyroid hormone . . . wherein goiter is the result of compensatory hyperplasia to make up the deficiency.

The latter theory appears to be closer to the truth. The inhibitory effects of the drugs are most likely on the thyroid gland itself, on the pituitary, or on some specific enzyme system. The course of events appears to be as follows: Upon administration of the drug, the organism is unable to synthesize the thyroid hormone at a normal rate; hence the concentration of circulating hormone itself. This stimulates the pituitary gland to produce thyrotropin which, in turn, stimulates the thyroid to hyperplasia and to release the thyroid hormone stored therein. Eventually the normal hormone becomes exhausted, but new hormone is being made at a reduced rate, so that we ultimately have a picture of reduced metabolic rate in spite of hyperplasia.

Thiourea and thiouracil have very recently been used

on humans suffering from hyperthyroidism (Astwood, '43). Such promising results as relief of symptoms, return to normal serum cholesterol, and reduced B.M.R. were observed. As long as the patients received this therapy, they sustained remissions from their disease, but as soon as therapy was discontinued, there was a return to hyperthyroidism. Thiouracil was found to be three times as active as thiourea. Also, in treating humans, one must constantly bear in mind that there is a latent period of one to two weeks before these substances show any effect and that toxic reactions and agranulocytosis may occur. The real value of thiourea and thiouracil in the treatment of hyperthyroidism must await further clinical investigation; nevertheless, it is not too much to say that this most enigmatic facet of thyroid behaviour has been forced to yield to the scientific method, and it is a reasonable hope that, in the near future, some such therapy may obviate the need for surgery.

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STUDIES ON PERFUSION FIXATION

(Continued from page 10)

tissue spaces would then occur. Under these conditions the cells would shrink.

With these considerations in mind, a fixing fluid was devised for the guinea pig that was to be used at a perfusion pressure of 70 mm. Hg. Its composition is:

Solution A.

Gum acacia	2.4 gm
Sodium chloride	0.9 gm
Water	96.7 gm

Solution B.

Gum Acacia	2.4 gm
Sodium chloride	0.9 gm
Commercial formalin	96.7 gm

Solution A is used to rid the vessels of blood before actual fixation is effected with Solution B. Due to the fact that the unopposed effect of formalin on tissues is that of a tanning agent, namely, shrinkage, it is necessary to limit the amount of the formalin-saline-acacia mixture introduced into the animal. For guinea pigs of 350-400 gm, no more than 25 to 30 cc should be introduced. A proportionate amount should be used for larger animals.

The concentration of 2.4% gum acacia was found empirically to be effective in preventing an increase in the weight of the animal at a perfusion pressure of 70 mm. Hg. Greater concentrations, it is interesting to note, actually dehydrated the animal and resulted in a loss in weight. Gum acacia exerts a colloid osmotic pressure, just as the plasma proteins do. Its molecule is too large to pass thru the capillary endothelium in any considerable amounts. The concentration of 0.9% NaCl rendered the fixative isotonic to mammalian tissue fluid. Commercial formalin is ten times as concentrated as the formalin solution generally used (10% formalin), and it was reasoned that this would fix the nerve tissue more rapidly and completely.

The brains of guinea pigs fixed by this method were dehydrated with dioxen, imbedded in nitrocellulose, sectioned, and stained with thionin; this is essentially a modified Nissl stain. Sections of these brains were studied and compared critically with comparable sections from animals fixed with 10% formalin, and from animals fixed with 5% sodium chloride in 10% formalin. The nerve cells of the animals fixed with 10% formalin were larger and rounder than cells of the animals fixed with the new fixing fluid, indicating that the cells had swollen somewhat. In addition, evidence of edema was present as evidenced by the greater separation of tissue elements from each other. The brain cells of those animals fixed with the 5% NaCl in 10% formalin, on the other hand, were very much shrunken as compared with similar cells of the animal fixed with the new method. Also, the tissue elements were much

closer together. These results were in accordance with the predicted effects of hypotonic and hypertonic fixing solutions.

This method of fixation is believed to present the following improvements: (1) Fixation is effected without altering the relationship of the tissue elements to each other; (2) the size of the individual cells remains unchanged and (3) the normal structure of the vascular tree is preserved. In all of the brains prepared in this manner, the most striking thing was the presence of innumerable small blood vessels; even the smallest 6-7 micron capillaries remained patent and ostensibly normal. With the ordinary type of perfusion fixation, these small blood vessels are for the most part collapsed and discernible only under especially fortunate circumstances. This appears to be true for other organs as well, and it is believed that this method of fixation will be of value in the study of organs in which the pattern of the vascular bed plays an important role and in many instances is discerned only with the greatest difficulty.

It must be emphasized that this is not the final word in fixation techniques. Although formalin is an excellent all around fixative for nervous tissue, better fixatives are available for other tissues. Gum acacia may be replaced by similar substances, such as gelatin and albumin. It is hoped that future histologic technique will be based more upon scientific principles and less upon "trial and error" empiricism.

PENICILLIN THERAPEUTICS

(Continued from page 15)

into the spinal fluid in detectable amounts. Thus daily instillations must be performed to supplement systemic therapy. Both the sodium and the calcium salts of penicillin are satisfactory for this type of administration.

Subcutaneous Administration—Absorption of penicillin instilled via this route is erratic and variable. Moreover, concentrated solutions of penicillin are irritating to the subcutaneous tissues.

Intramuscular Administration—The intramuscular administration of penicillin at three or four hour intervals is a simple and practical method. However, these injections may not be tolerated so well as repeated or constant intravaneous injections. When multiple intravenous or intramuscular injections are used, the intervals must be constant for the rapidity with which penicillin is excreted would result in wide variation of the blood concentration. In intramuscular administration local irritation may be encountered, however, this is not found to be serious.

Intravenous Administration—Penicillin disappears from the blood more rapidly in single intravenous injection, than after single intramuscular injection. More than 50% is excreted in the urine in one hour, and by the end of three hours hardly a trace can be found in the blood stream. However, high circulating blood levels can be obtained during the first hour. The method of choice is the continuous intravenous drip method. With this technique two liters of fluid are used per day. The penicillin may be dissolved in a 5% dextrose solution. Generally speaking, a concentration ranging from 25 to 50 Oxford units per c.c. proves adequate. Herrell suggested that 100,000 units per day is probably the maximal amount of penicillin necessary for treatment of the infections most commonly encountered.

Fate in the Body

Absorption and excretion of penicillin are dependent upon several factors, most important of which are (1), mode of administration, (2), dosage, (3), status of the kidneys and liver. When penicillin is administered intravenously, the promptly resultant high plasma concentration falls rapidly, since excretion by way of the kidneys begins immediately. Upon intramuscular injection, since the drug is absorbed more slowly, peak concentration in the blood is lower than after intravenous administration, but a more sustained plasma is obtained.

Very little, if any, penicillin enters the cerebrospinal fluid or the serous spaces following intramuscular or intravenous administration. When injected directly into these spaces, absorption is relatively slow, and excretion very much retarded.

Since it became known that even under ideal conditions only about 60% of the intravenously administered penicillin could be recovered in the urine there has been a constant search for information concerning its fate in the body. Rammelkamp and Keefer[7] reported that neither plasma nor erythrocytes have any destructive effect on penicillin activity. The distribution of penicillin also was studied in other body fluids. These authors found that bile obtained fifteen minutes after injection of the drug contained twice the concentration of penicillin found in the serum. They found no penicillin in the spinal fluid, tears, or saliva.

Toxicity

The outstanding characteristic of penicillin is probably its lack of toxicity. In doses far above the necessary therapeutic level no ill effects have been noticed. The purer preparations are less toxic than the original material, indicating that whatever tox-

icity can be illustrated is probably due to impurities. In clinical use occasional thrombosis has been noted following prolonged intravenous injections. Some pain has been experienced in intramuscular injections. Following massive doses in animals the white cell counts tends to be slightly depressed, but it usually returns to normal within 48 hours.

"Penicillin has also been found to be an effective agent in the following diseases but its position has not been definitely defined:

"1. Syphilis
2. Actinomycosis
3. Bacterial endocarditis

"Penicillin is of questionable value in mixed infections of the peritoneum and liver in which the predominating organism is of the gram negative flora—i.e.

"1. Ruptured appendix
2. Liver abscesses
3. Urinary tract infections
4. It is also of questionable value in rat bite fever due to streptobacillus moniliformis.

"Penicillin is *contra-indicated* in the following cases because it is ineffective:

"1. *All gram negative bacillary infections:*
Typhoid—Para-typhoid
Dysentery
E. Coli
H. Influenza
B. Proteus
2. Tuberculosis
3. Toxoplasmosis
4. Histoplasmosis
5. Acute rheumatic fever
6. Lupus erythematosis diffuse
7. Infectious mononucleosis
8. Pemphigus
9. Hodgkin's disease
10. Acute and chronic leukemia
B. Pyocyaneous
Br. melitensis (undulant fever)
Tularemia
B. Friedlanders
11. Ulcerative colitis
12. Coccidiomycosis
13. Malaria
14. Poliomyelitis
15. Blastomycosis
16. Non-specific iritis and uveitis
17. Moniliasis
18. Virus infections
19. Cancer."

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THE ROLE OF PSYCHOSOMATIC MEDICINE

(Continued from page 12)

suffered from frequency of micturition before examinations, or who, when in France, had actual experience of the bowel looseness that occurred before action, should persistently refuse to seek a psychical correlative—not to say an etiological factor—when confronted with a case of enuresis or mucous colitis."[7]

The second great group includes the cardio-vascular disorders, particularly hypertension and the anginal syndrome. A distinct predisposition to rheumatic heart disease in view of psychic disturbances has been noted. It is estimated that 90% of cardio-vascular disease can be best treated from a psychosomatic approach.

The third group of diseases which come into the scope of psychosomatic treatment are the chronic debilitating diseases such as diabetes and tuberculosis. The psychic aspect of these diseases cannot be ignored. Irrespective of the initial causative factor, prognosis of the disease itself and the personality adjustment of the individual depend upon proper mental training of the patient.

The definite presence of psychic symptoms in the allergic diseases, hay fever, and asthma has long been appreciated. Study of these diseases lead the investigator to the question of the relationship of hypersensitivity to events occurring at the time of the first exposure of the patient to the irritating substance. Some of the most productive research in medicine is now being conducted upon this problem; in its solution may lie part of the secret of immunity and resistance to disease.

Psychosomatic medicine has a distinct role in the field of preventive medicine. Whether one wishes to accept the emotional disturbance as a causative agent or not he cannot deny the predisposition to fall prey to infective agents found in emotionally unstable persons. Emerson says: "The bacteriologist . . . no longer teaches that bacillus typhosus, for illustration, is the 'cause' of typhoid fever. It certainly is the only known specific cause, nevertheless the chain of etiology of typhoid fever is made up of other links also, and among them some which he names 'immunity', 'resistance', 'susceptibility', etc., and these, he knows, the affective psychical states of the patients can easily modify."[8] Nervous tension is a simple phenomenon, but when prolonged may produce fatigue and organic malfunction. It is this prolonged tension, which the patient may have learned to thoroughly conceal, that the psychosomatic physician must detect in order to

gain a true perspective of the patient's resistance to disease.

The wide scope of psychosomatic medicine leaves little doubt as to the future importance of the field. In view of the problems of health insurance and socialized medicine with which we are now confronted, it is imperative that attention to the psychic component of disease be instituted as a part of medical study. Before a system of organized care for the ill can be attempted—measures must be taken to insure the patient of adequate provision for psychosomatic diagnosis. Dunbar and her associates present statistical evidence showing that at least 80% of diseases requiring hospitalization have significant emotional complications. If adequate attention to the personality factors, in conjunction with good somatic treatment can be instituted, the gains to be realized are incalculable.

The role of psychosomatic medicine is a broad and a vital one. It is a field that neither the medical student nor the practitioner may dare to ignore. Galdston points out: "To the extent that medicine fails directly and indirectly to ameliorate the interrelationships of man and his life's realm, it can succeed only in deferring mortality, but not in decreasing morbidity."[9] And it is well to remember that it is not mortality that makes a people dissatisfied with themselves and society—it is morbidity. If the psychic components of disease are to be neglected, organized public health programs are doomed to failure. For no matter by what scientific skill the organic lesion be destroyed—the patient is not well until every correlated psychic symptom is removed.

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PARASITOLOGY IN ONE EASY LESSON

(Continued from page 18)

on flies and fleas, but bedbugs are more than familiar to many students housing in the neighborhood of the school.

Helminthology is tougher. Here we face several subdivisions: 1.) Cestodes or tape worms—usually as long as a lecture in parasitology during midsummer; flat as a student's pocket before Dad sends the check and hard as the questions asked about these worms in the final examination. Tape worms have or do not have a crown resembling the hair of Nancy and indulge in wearing the genital pore on one or another side of the proglottid. Several combinations of the above features may occur, mainly in students' answers to quizzes. When we add that some tape worms form cysticerca similar to the head of Sluggo, the picture is more than complete. 2.) Nematodes or round worms—usually short and plump, mostly yellowish—thus representing known feminine ideals of C.M.S. students. The possible combinations, permutations and variations of the genital pores of the tape worms are substituted here by another hobby: the foxy features of the egg. Some round worms transfer the psychology of their mixed Freudian appeal also to their eggs—and we may enjoy fertilized and unfertilized eggs, sexual and asexual larvae and other items. The most representative round worms, the hook worms, became known when the Rockefeller Foundation began to build latrines all over the world to keep them out of circulation and to teach them to live in such domestically furnished reservations. "To sheath or not to sheath, to have or not to have tail points," is the battle cry of Filaria. Again, take a chance—and may-be, perhaps, but not always, you can guess the proper species, according to your daily horoscope in your favorite paper.

3.) Trematodes or flukes—have beautiful names and gorgeous suckers. They are the best examples of hermaphrodites, living, eating and working only in order to produce eggs and to irritate parasitologists with their life-cycles. As Pappy Yokum goes in for preserved turnips, so the noble trematodes fall for certain vegetables, fish or crabs. All of them like to drop in water and descend to a snail, as Popeye descends into Davy Jones' locker. The blood flukes or Schistosoma have male and female representatives, and are presented on demonstration slides always as "copulating pairs," thus giving the false impression that they are bestowed with low moral characters.

The trematodes are the most wonderful subjects of parasitological study because no other organism has as many possibilities to receive a series of names selected from the following list: egg, hatching egg, miracidium, sporocyst one and two, redia one and two, cercaria, metacercaria, adult fluke and back all over again. The branching of the intestine, the position of the ovaries, testes and suckers contribute with additional flavor to the joys of the study of flukes. Taking into account the marvelous names and the geographic situation—here you are; Hic Rhodus, hic salta; young man and future physician. For your practical point, however, be assured that to date (August, 1944) no effective treatment of fluke infections is known. Our conscience, however, is quiet and calm: we know all names of all trematodes, both in Greek-Latin and in English.

The protozoa enjoy a subdivision into intestinal and blood parasites. Intestinal protozoa are usually found when the laboratory worker gets tired of looking at epithelial cells and mold spores in the feces and declares one of such elements an atypical amoeba or cyst. Flagellates are usually motile, mainly when the stool has stood long enough, so that coprozoites have had time to appear in it. Flagellates are larger than bacteria and one often has a hard time finding a bacillus big enough to be pronounced a flagellate. Insistence and conscientious work coupled with proper intellect, however, will lead to the achievement of this supreme technique. Amoebas have a certain number of nuclei in the text books but never in class material. They are also motile except in school demonstrations.

Blood protozoa may be found easily in conglomerations of blood platelets or precipitates of stain. According to whether the Wright stain was forgotten on the slide for three or for four hours, tertian and quartan parasites, respectively, are seen. When the instructor spots the individualistic exhibitions of a self-invented staining method applied by the student to the precious malaria smear, and makes such a fuss about it that the student gets hot with shame, tropical parasites will be present. When the Wright's is forgotten on the slide until the next laboratory period, so that it dried out completely and left an irregular round spot on the slide, ovale parasites will be diagnosed. Blood flagellates can be made apparent easily when the smears are streaked so artfully that the red blood cells are modulated into very elongated shapes. Then simply overstain the slide to have dark blue cells, and drop your fountain pen filled with red ink twice on each cell, thus producing the two required nuclei. Those gifted with manual dexterity will find it easy to see their efforts crowned by success.

Having now finished the detailed description of the parasites, only some small, easy and less important details remain to be memorized from other lectures and sources. Just keep this article in mind and do that little additional memory work. It is a cinch. Really, not too much more is necessary. Just memorize the text book of Craig and Faust, Nauss or Belinger—and you will see how easy it is to get an "A" in parasitology!

CAUSES OF DEATH IN INSTESTINAL OBSTRUCTION

(Continued from page 16)

loss in the vomitus. The water is lost to maintain the electrolyte concentration in the body fluids. Therefore, water *and* chloride must be replaced to prolong life. But KCl or NH_4 Cl have little palliatory effect, so the chloride loss is seen to be only part of the picture. Actually, the loss of chloride results in excess anion concentration (or alkalosis), which is compensated for by loss of sodium in the urine. The loss of either anion *or* cation can be compensated for by retention of other anions or cations, but the loss of both anions *and* cations (sodium ion and chloride ion) can be compensated for only by water loss. Therefore, in addition to the water level, that of sodium and chloride must be raised if treatment is to succeed.

Chloride is lost not only by vomiting—it also passes into the obstructed bowel. Even in the presence of a block, peristalsis forces the food toward the obstruction with such force that it causes distension at the site of the dam. This distension, by irritation, causes increased secretion and more loss of chloride. This is easily proved in the rabbit, which cannot vomit, but which develops the typical blood picture in case of gut ligation. Continued distension of the bowel is fatal because of the loss of chloride and the accompanying loss of water, but death can be postponed by administration of saline.

However, this is not the whole picture, because the animal dies eventually, even with saline treatment, and because death may occur before great blood changes have taken place. And in experimental animals with histamine and apomorphine administered (to increase gastric secretion and promote vomiting), good health is retained even with a low blood chloride level. Also, when the bowel is distended without being obstructed (as by a tube which detours around the blown-up balloon), the usual symptoms result, though there is no fluid loss by vomiting, and little change in blood chloride. Death is the final symptom in all these

cases, so the chloride level is only one of the factors.

If the segment of the bowel is denervated before distension, the animal lives considerably longer than otherwise. Therefore the afferent nerves must play a role in the syndrome under consideration. Now, it is well known that many reflex effects on various viscera can be initiated from the gastro-intestinal tract by these nerves. And decompression of the distended bowel by the Miller-Abbott tube—the modern method of treatment—relieves the symptoms. So we are sure that nervous factors are also very important.

To sum up—present knowledge is that the cause of death in intestinal obstruction is partly due to loss of chloride and water and partly due to nervous irritation. However, the matter is by no means completely settled, and other factors, about which we know nothing, probably play a part.

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Organizations

STUDENT COUNCIL

The first Student Council of the Chicago Medical School was formed on June 10, 1944 with the following membership.

OFFICERS:

President: A. Zweibel
Vice-President: G. Kayman
Secretary: D. Shoemaker
Treasurer: L. Arnold

MEMBERS:

Seniors:	*Sophomores:*
R. Bodwin	L. Arnold
S. Major	L. Richman
M. Wohl	D. Shoemaker
A. Zweibel	L. Wolff
Juniors:	*Freshmen:*
K. Calhoun	R. Carlson
P. Deavers	G. Kayman
S. Gutensky	S. Levine
M. Linderman	I. Schoenberg

During the tenure of this Council, the following committees were established to facilitate its work:
Student Relations Committee: R. BODWIN, *Chairman*
Endowment Committee: M. WOHL, *Chairman*
Constitutional Committee: L. ARNOLD, *Chairman*
Student Health Committee: G. KAYMAN, *Chairman*
Publicity Committee: S. LEVINE, *Chairman*
Executive Committee: A. ZWEIBEL, *Chairman*

The current program of the Council and its Committees includes these items:

1. Student endowment drive
2. Procedure for student appraisal of courses
3. Student assistance in Student Health program
4. Uniform procedure in class elections
5. Creation of a Code of Ethics
6. Series of lectures on subjects of interest to medical students.

The Student Council invites all students to attend its meetings and to assist by participating in its work.

A.I.M.S.

The AIMS continued to increase its prestige and importance as a student organization throughout the past semester. It sponsored a "registration for voting" drive among the students and provided them with all the necessary details. It conducted a school boat ride in the middle of September which was moderately successful considering the pressure of studies, time, and the fact that it was the first social affair conducted by the organization. However, the main activity was confined to the presentation of medical films every week to the student body. Ten films in all were presented, among which were some of Pediatrics, Meningitis, Pneumonia, and Tuberculosis; and in all instances the student response was more than satisfactory.

In addition to the latter which is more of a school than an AIMS function, the organization has also planned an ambitious campaign for next semester concerning increased social activities, greater cooperation with other AIMS groups throughout the city, newer and better medical and surgical films, and an all-out drive for 100% enrollment of the student body.

PHI LAMBDA KAPPA

Looking back at the past events, we note with pride that Alpha Rho has grown in membership and in activities. A closer bond exists between Alpha Rho and Alpha Alpha of Illinois Medical School, as manifested by the past dinner meetings and parties which were enjoyed together. We are proud of the "News Letter" inaugurated by Fraters Jim Weishaus of Alpha Rho and Jay Schmidt of Alpha Alpha and are looking forward to interesting publications for the coming year. To complete the year's events, the

Annual Dinner Dance for the graduating seniors and the inductees of both chapters was held at the Terrace Casino of the Hotel Morrison. We planned a program which proved a happy and memorable event for all the Fraters and their guests. Dr. Jacob Brodsky awarded the graduates with the coveted keys.

To the future internes, who must soon leave our ranks, we extend our very best wishes for success in their interneship and in their medical profession to follow.

At a combined meeting with Alpha Alpha of Illinois, held at the Hotel Graemere, 27 new members of the Freshman and Sophomore classes joined the roll call of Phi Lambda Kappa. Alpha Rho salutes:

Leonard Arnold
Howard Berger
Narvin Brown
Arthur Dishman
Abraham Feldman
Edwin Feldman
Melvin Goldy
Sherwin Isaacson
Eliott Jacobson
Samuel Katz
George Kayman
Harold Koenig
Herbert Maltz
Norman Monitz
Melvin Moore
Louis Richman
Erwin Rockowitz
Alan Rosenberg
Myron Saline
Irving Shonberg
Alan Siegel
Albert Siegel
Arnold Statsinger
Edward Svetkey
Herbert Tetenbaum
Seymour Warman
Samuel Weinberg

The new members were enthusiastically greeted into the Fraternity by Grand Scribe, Dr. Harry Epstein, Drs. Jacob Brodsky, M. I. Kaplan, and Maurice Oppenheim.

To the officers of Alpha Rho for the past year, we extend deserved commendation for their untiring efforts and guidance to keep our chapter in strong unison and brotherhood. Sam Udell leaves us with an excellent record of leadership and we shall remember him for his fine work and friendliness. We acknowledge with thanks Dr. Jacob Brodsky for his kind counsel and good cheer which he contributed at our meetings in the past and trust he will honor us in the meetings to come.

The following new officers were elected for the coming academic year, and our best wishes and cooperation goes with these Fraters for the assurance of added success for Phi Lambda Kappa. Alpha Rho proudly salutes her new officers:

Worthy Superior, Burton W. Rockliff
Chancellor, Charles M. Biren
Scribe, Louis J. Polskin
Vice-scribe, George Kayman
Treasurer, Bernard Z. Reizner
Sgt.-at-arms, Lester Wolff

Under their leadership Alpha Rho looks forward to a successful, sociable, and fraternal season to come.

School Notes

At a recent Student Council meeting, Dr. Neiman presented the new student health program, which includes a hospitalization plan.

In order to create a fund for hospitalization, the student health fee has been increased by five dollars a year. Under the present plan the ailing student notifies the school, upon which he is given the name and telephone number of his district physician, who is a member of the school faculty.

This hospital service is available to all students requiring immediate hospitalization. The student may select any surgeon of his preference to attend to his case, if surgery is indicated.

As part of the Research Program of the Student Health Service, an experiment will be begun during the first week of October. From past work with the sulfa drugs, it is known that sulfathiazole is an excellent chemoprophylaxis, but until now the drug has been used only in the form of an ointment which has been applied locally. A new product has been recently manufactured which may bring to an end that search for a suitable convenient prophylaxis against colds and sore throats, a gum. By chewing this gum during various critical periods of the day, keeping the sulfa level of the mouth fairly high during this time, the pharyngeal region will be bathed, and thus the gum will have the same effect as any applied ointment.

Dr. Nieman has devised an experiment which will require 100% cooperation of the student body. The students will be divided into two groups, each of which will follow a different schedule. The first group will have to chew the gum three times daily-morning, afternoon and evening; while the second group will chew it only before retiring. After a suitable length of time, a comparison of the two groups will be made and in this way Dr. Nieman hopes that some definite evidence may be collected. The gum will be supplied by the manufacturer of the product.

With relation to the effect of the sulfathiazole on those people who are sensitive to the drug, not much is known. On basis of previous experiments, the intake of the drug will not increase danger of developing sensitivity, and using this as a criterion, it is felt

that although the possibility of reaction is present, it is not likely.

As previously stated, 100% cooperation from the student body is necessary to insure accuracy, since the total number of cases involved is quite small for an experiment of this kind.

Faculty Notes

DR. EDGAR DAVIDSON CONGDON

We are indeed honored to welcome to our school Dr. Edgar Davidson Congdon, who joins our faculty with the rank of Professor of Anatomy.

Dr. Congdon possesses a rich and varied background which is worthy of considerable review.

Born in Wolworth, New York in 1879, Dr. Congdon later attended the University of Syracuse where he received his A.B. and A.M. degrees in 1901 and 1902 respectively. In 1909, Harvard University conferred upon him the degree of Ph.D. in Zoology. After a series of travelling fellowships, which carried him to Zurich, Manchester, and Vienna, Dr. Congdon returned to this country and became an acting instructor in anatomy at Cornell University Medical School in 1911. After a year's stay he transferred to Stanford University, where he rose from Instructor to the rank of Assistant Professor of Anatomy in 1913, and, after holding this post for 9 years he became Associate Professor of Anatomy at the Peiping Union Medical College, in China, from 1922 to 1926.

The intrigue and fascination of Siam then lured him to the Chulalongkorn University medical school in Bangok. Here he served as full professor of Anatomy from 1926 to 1931. Returning to this country in 1932, Dr. Congdon has since been engaged as Professor of Anatomy at the Long Island College of Medicine which position he held until his arrival at our school.

Dr. Congdon has engaged in many types of valuable research, among which were his studies on the development of the sphenoid sinus in man, the biological effects of radium on living tissue, the transformation of human embryonic aortic arches into definitive arteries, the physical anthropology and surface features of 300 Chinese fetuses, preliminary study of physical anthropology of the Siamese, and the classification of gross extra-organic connective tissue structures.

Dr. Congdon has done a great deal of work on the renal fascial cone, and has described a new connective tissue layer, which he terms the "shearing layer," never before mentioned in the literature. It is so called because it is patterned after the stresses and strains familiar to engineering terminology.

At present, Dr. Congdon is busy making a series of photographic records of 16 bodies showing serial cross-sections through the subcutaneous layer of the anterior abdominal wall and upper thigh. This method is unique in the field and demonstrates the material much more clearly than drawings alone.

At the same time he is making a study of the branches of the axillary artery in 235 axillae of the Siamese, and will later correlate these with the White Race. In what spare time he has left, he is making microscopic studies of the muscular and connective structures of the anal canal.

With so vast a teaching experience, it is to be expected that Dr. Congdon has formulated some very specific ideas on the teaching of anatomy. His views may be found in the Anatomical Record, Volume 53, No. 2, July 1932, in his article entitled, "The Basic Aims in Teaching Anatomy of the First Medical Year and Their Methods," and in Volume 45, pp. 323-337, 1930 in "An Attempt to Improve the Methods of Anatomical Teaching, Including the Organization of the Dissection to an Unusual Degree by Systems and Bringing of the Developmental, Gross and Microscopic Anatomy of Individual Organs Together in the Schedule."

His last article on medical education appeared in

the Journal of the Association of American Medical Colleges, July 1937, and was entitled, "Topic Schedule of a Highly Correlated Course in Anatomy."

It is hoped that Dr. Congdon will continue his brilliant research and pedagogical endeavor while enjoying the facilities of our school.

DR. ALBERT E. H. HOUK

A native of Chicago, Dr. Albert Edward Hennessee Houk has returned once again to the city of his youth. Dr. Houk has recently been appointed Associate in the Department of Physiological Chemistry and we have no doubt that his genial face will soon be a familiar sight to future freshmen and sophomores.

Dr. Houk began his higher education at the Austin High School from which he was graduated in 1932. He then attended the University of Minnesota where he received both his B.S. and M.S. degree in 1936 and 1938 respectively. In 1944, Columbia University conferred upon him the degree of Doctor of Philosophy.

During this time, Dr. Houk had several teaching positions. He began his teaching career at his home university, Minnesota, in 1936 where he held the position of teaching assistant in biochemistry for two years. From 1938 to 1939 he instructed at Purdue University in the Departments of Chemistry and Biochemistry. In 1943, the Nutrition Foundation awarded him a fellowship at the Yale University School of Medicine. While at Yale, he was instructor at the Medical School and did research work. He also was in charge of assembling and amassing the equipment for the new Chittenden-Mendel Laboratory.

Dr. Houk has done some very interesting and original research in his still young academic career. Among these have been the study of the relation of diet to spontaneous mammary cancer in mice, a revolutionary three day test for vitamin deficiencies employing microorganisms, chromatographic and spectrophotometric studies on the carotenoids and Vitamin A, and work on nomographs and their application to biochemistry.

His current work is concerned with mineral metabolism, especially that of cobalt deficiency. In this subject, he has worked with such distinguished colleagues as Professor Arthur W. Thomas, acting head of the Department of Chemistry of Columbia University, and Professor Henry C. Sherman, after whom the "Sherman Unit" of Vitamin Chemistry was named, also of Columbia.

These three men will present a paper on this subject before the Biochemical section of the American Chmical Society at their meetings in New York. At that time they will reveal the details of a chemical method which is so sensitive that it can detect one part of cobalt in 300,000,000 parts of diet.

Dr. Houk has been elected to membership in many societies among which are Sigma Xi, Phi Lambda Upsilon, Gamma Alpha, and Alpha Chi Sigma. Dr. Houk is married, and though extremely busy with research, still manages to find time for his three hobbies—photography, ornithology, and badminton. (He admits, however, that his badminton game isn't what it used to be.)

We are happy to welcome Dr. Houk to the faculty and assure him that we will watch for the results of his future research with great interest.

At the recent Twelfth Annual Convention of the American Society of Medical Technologists, an exhibit on "Laboratory Techniques in the Tropics" was presented by several members of the faculty. The display was under the direct supervision of Dr. Oscar Felsenfeld, M.D., D.T.M., and Miss Viola Mae Young, B.S., of the Department of Bacteriology and Pathology. Miss Helen Hift of the Department of Clinical Pathology and Mr. Charles M. Biren assisted in the presentation.

The exhibit was sponsored by the Chicago Medical School and was presented with school equipment. Many interesting slides, entomological specimens and numerous colored charts drawn by Dr. Felsenfeld were placed on display. Some of the posters showed the methods of bacteriological determination of Shigellae, Salmonellae and Typhoid organisms; others were of the methods of staining amoebae, elements in the blood stream often mistaken for human parasites, the life cycles of trematodes and filaria, the dissection of mosquitoes, and mistakes frequently made in the diagnosis of amoebae and plasmodia.

The charts were perhaps the outstanding feature of the display and were well appreciated for their scientific accuracy and detail. The exhibit was warmly re-

ceived by the visiting technicians who asked many questions and made numerous requests for written advice.

Dr. O. Felsenfeld.

1. O. Felsenfeld and V. M. Young, 1944. The significance of single and multiple Shigella infections in institutionalized children. J. Pediatr. 35:56-67.
2. O. Felsenfeld, 1944. On the staining of protozoa in human blood and feces. Communication to the Annual Meeting of the American Society of Parasitologists, Cleveland, Ohio, September 11-13.
3. O. Felsenfeld, 1944. The lecithinase activity of Vibrio comma and the El Tor vibrio. J. Bact. 48:155-157.

Miss V. M. Young.

1. Co-author, see publication of Dr. Felsenfeld, No. 1.
2. V. M. Young, 1944. The incidence of intestinal protozoa in mental patients and in cases showing symptoms of amoebic dysentery. Communication to the Annual Meeting of the American Society of Parasitologists, Cleveland, Ohio, September 11-13.

Dr. O. Felsenfeld and Miss V. M. Young transferred their typing center of enteric organisms (Salmonella, Shigella, amoebas, etc.) from the Central Enteric Laboratory of the Illinois State Hospitals to our School. This center is operated as similar advisory laboratories in Texas, New York, Connecticut, etc., but this extends its activities also to intestinal parasites. It serves several Army hospital laboratories in tropical regions and is consulted by some Public Health Departments outside of Chicago. By October 1st, two voluntary assistant bacteriologists will join this center, while the present assistant, Miss Helen Hift, has left for Urbana, Ill., to work for her Ph.D. degree.

Dr. O. Felsenfeld and Miss V. M. Young are translating Kouri's and Basnuevo's "Parasitology and Tropical Medicine" from Spanish into English.

LETTERS TO THE EDITOR

New Hebrides, South Pacific
4 August, 1944

The QUARTERLY
a/c Editor
The Chicago Medical School
710 South Wolcott St.
Chicago, Illinois

Dear Sir:

Thank you very much for sending me the QUARTERLY. It's enjoyable to read of the activities of the school far away out in the Pacific.

I would appreciate if you would correct my address on your mailing list.

With best wishes and continued success, I remain

Respectfully yours,
Jack D. Kirshbaum
Lt. Col., M.C.

Abstracts

Royal L. Brown, EFFECT OF SEMINAL CONSTITUENTS ON SPERMATOZOA, The Journal of Urology, Vol. 51, Number 4.

The seminal fluid of the human male is a heterogeneous composite derived from the testicular, seminal vesicular, prostatic and Cowper's glands. This secretion serves as the fluid environment of the spermatozoa while in the excurrent ducts of the male.

Many concepts have been considered in the past as to the contributions of the above secondary glands, in respect to the effect the glands have on the prolongation of the life of spermatozoa.

It has been found that semen in which spermatozoa had died by natural aging processes decreased markedly the longevity of fresh spermatozoa. Experiments were conducted to determine if any of the separate seminal constituents were responsible for this deleterious action.

Experimentation indicated that the tissue fluid from these secondary genital glands had no effect on the longevity of the spermatozoa. However, normal urine decreased the longevity by about 40% at 37° C in a routine laboratory test. Typed sera (A,B,O,AB) had no effect. It was also found that mixing a fresh-ejaculate in a ratio of 1:1 with nine to ten day old ejaculates in which all the spermatozoa had become immobilized proved to be spermicidal. However, a mixture of two or more fresh ejaculates were not spermicidal to the contained spermatozoa.

It was concluded by the experimental results that the spermatozoa are either resistant to a second or added exposure to these secretions, or that they are already resistant to their action to the limit, for the spermatozoa in the ejaculate were definitely not affected.

Leo M. Zimmerman, M.D., F.A.C.S., Lieut-Comm., M.C., USNR; Barry J. Anson, Ph.D. (Med. Sci.); Edward H. Morgan, Lieut, M.C. AUS; Chester B. McVay, Lieut, M.C. AUS. VENTRAL HERNIA DUE TO NORMAL BANDING OF THE ABDOMINAL MUSCLES. Surgery, Gynecology, and Obstetrics Vol. 78, May, 1944. No. 5

In the region of the anterior abdominal wall between the lower border of the conjoined tendon and the umbilicus, the antero-lateral abdominal muscles are subject to striking departures from the anatomic norm. These departures predispose to weakness against parietal herniation.

The external abdominal oblique muscle is the most

uniform of the three muscles encountered. Its chief variation is in the extent of the triangular hiatus between the crura of the subcutaneous inguinal ring. This may extend as far laterally as the anterior superior iliac spine. The greater the degree of this condition, the greater the laxity of the intercrural wall of fascia and the greater the chance for herniation in this region.

The internal abdominal oblique muscle shows the most frequently observed variations. A part of its structure may consist of separate musculoaponeurotic bands held together by investing fascial layers. This banding of the muscle tissue is also found frequently in the transversus abdominis muscle.

In the author's study of 500 body halves, 109 such defects were found, which could permit parietal herniation. Of 100 bodies studied, 25 had defects of the banding type in the internal abdominal oblique alone, 10 in the transversus abdominis alone, and 10 had defects in both muscles.

These observations have shed new light on the genesis and pathology of spontaneous lateral ventral hernias, exclusive of the lumbar type. The hernial ring in these cases is a defect in the transversus abdominis aponeurosis caused by the sac preceded by a lipomatous mass of preperitoneal fatty tissue, the contents of which are usually small intestine or omentum. Contributory factors to the herniation between the banded fibres of the internal abdominal oblique and transversus abdominis muscles are obesity, pregnancy, ascites, chronic coughs, and severe muscular effort.

The authors believe that spontaneous ventral hernias of this type are far more prevalent than the number of such cases actually reported and wish to impress the importance of recognition of this pathogenesis, for careful diagnosis and rational and lasting repair. S.I.

One of the ceremonies of assuming the toga virilis among indigenous Australians consists in submitting to having each particular hair plucked singly from the body; the candidate being required not to display evidences of pain during the operation.

* * * *

During a Samoan marriage ceremony the friends of the bride "took up stones and beat themselves until their heads were bruised and bleeding."

* * * *

No man is happy who does not think himself so. —Publilius Syrus.

"THE PHOTOTHERAPY OF BURNS," P. M. Leonenko, *American Review of Soviet Medicine.*

Like all other extreme trauma of tissue, burns require early and rapid treatment. Dr. Leonenko outlines the folowing procedure.

The surface and surrounding skin is washed with benzene. The wound surface and surrounding area is then immediately exposed to the Quartz-Lamp. The patient is placed, as soon as possible, into a cabinet controlled at 34-36°C by thermo-light. No chemotherapy is used. The doses of Quartz-Lamp and thermo-lamp are given every day for five days, or until erythema of the surrounding tissue results. Later larger doses are given every two to three days.

Novocaine can be used to relieve pain and vaseline may be applied to prevent fluid loss. Contractures are prevented by early exercise, both active and passive, the patient having been encouraged to move about as soon as possible.

Under this treatment, the mortality rate has been found to be 13.8%. Death is due to toxemia, not shock.

The following effects of phototherapy are listed:

1. Reduction of pain, resulting in less shock.
2. Bactericidal action on bacterial flora of surface, preventing suppuration.
3. Tissue alkalinity was increased, combating acidosis of the wound area.
4. Crust is formed upon the wound. When suppuration occurred, crust was removed, wound recleansed, and reexposed to the Quartz-Lamp.
5. The general condition of the patient was improved.

Of the patients treated, those with 1st or 2nd degree burns required eight to fifteen treatments; those with 3rd degree burns up to sixty treatments of higher strength. Tissue regeneration was promoted without scars. It was possible to discharge two-thirds of the patients within twenty days.

"COURAGE AND DEVOTION BEYOND THE CALL OF DUTY"

Through the cooperation of Mead Johnson & Company, $40,000 in War Bonds are being offered to physician-artists (both in civilian and in military service) for art works best illustrating the above title.

This contest is open to members of the American Physicians Art Association. For full details, write Dr. F. H. Redewill, Secretary, Flood Building, San Francisco, California.

NEW BOOKS IN THE LIBRARY

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ANSWER TO DIAGNOSTIC PROBLEM

Biopsy of the rectal mass revealed an adenocarcinoma.

Biopsy of the sternocleidomastoid muscle revealed patchy degeneration of muscle fibers, and infiltration of the muscle with round cells. There was infiltration of fibrous tissue.

Diagnosis: 1. Adenocarcinoma of the rectosigmoid.
2. Dermatomyositis.

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Gibbs reports a curious case of a lack of integrity of the will in a man of 55. When having once started in a certain labor he seemed to have no power to stop the muscular exercise that the task called forth. If he went to the barn to throw down a forkful of hay, he would never stop until the hay was exhausted or someone came to his rescue. On all occasions his automatic movements could only be stopped by force.

* * * *

The College of Physicians, Philadelphia, has photographs of a case with an inscription saying that the patient was a young Chinese woman who measured but 4'8" in height, while her girth was increased by an ovarian cyst to 5'9⅛". The tumor was removed and weighed 182½ lbs. It contained 22 gallons of fluid.

* * * *

The attempt and not the deed confounds us.—Snakespeare.

* * * *

Mediocrity goes further with application than intellectual eminence without it.—Baltasar Gracian.

* * * *

A wise woman never yields by appointment. It should always be an unforeseen happiness.—Henri Beyle (De Stendahl).

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BACTERIA ARE THE STRANGEST THINGS OR SWING THAT GONOCOCCUS

"The time has come," the coccus said,
"To speak of many things;
Of why some strep are viridans
And colonies are rings,
And whether welchi plays the drum,
And pneumococcus sings."

The staph and strep and hoffmanni
Had gathered round to hear,
Which was strange indeed because
None of them had an ear;
They didn't mind since they had come
Expressly for the beer.

"My loyal friends," the coccus said,
"We're gathered here today,
To talk about the problem of,
'Is Sulfa Here To Stay?'
And if it isn't, why the heck
It doesn't go away."

"If variance will stop the drug,"
Spoke up a small g.c.
"Then by the beard of Doctor Koch,
That's the thing for me.
The problem thus resolves itself,
To B. or not to B.

"Rough or smooth or square or round,
Or edges dull or keen,
Those students always find me out
No matter what my mien;
Using tetra methyl para
Phenylene diamine."

They argued late into the night,
And early in the day;
When a jar of Lysol came along
And swept them all away;
Which was just as well because
They hadn't meant to stay.

I wish I were a little granuloma
I'd granulate upon my baby's knee,
And start a little ulcer in her bosom,
A gentle touch of lues or T. B.

With giant cells I would conquer and surround her,
The macrophages would come running fast;
If only I could be a granuloma,
I'd get her down in bed with me at last.

I am the very model of a modern student medical
I've information practical and highly theoretical
I know the kings of England and I'm well versed in mythology
And boast a short elective course in oto-laryngology.

Chorus: And boast a short elective course in oto-laryngology.

I wear a jacket white and in an atmosphere so clinical
I diagnose all cases with an apt expression cynical
My study hours are late at night. I'm constantly rehearsing for
My necking with that pretty little kaydet in the Nursing Corps.

Chorus: He constantly is necking with the kaydet in the Nursing Corps.

I've talked to charming detail men who always want to sell to us
The latest type of insulin for diabetes mellitus
I've read the latest monographs on all the drugs synthetical
Because I am the model of a modern student medical.

Chorus: He is the very model of a modern student medical.

He quotes from notes in Cunningham in language parenthetical
The daughter of a banker is the object he is searching for
But meanwhile he is necking with that kaydet in the Nursing Corps.
(Repeat).

A schizophrenic, no doubt, no doubt,
You're split, You're doubled in two;
Your personality's had twins
And neither resembles you!

Ah! Love and Life, the hunger of science
No animal drives allow;
But speak to me psychologically
And I can show you how!

Almost all our faults are more pardonable than the methods we think up to hide them.

—La Rochefoucauld